California MEDICINE

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION
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Volume 86 JANUARY 1957 Number 1

Cutaneous Tumors of Children

BEN A. NEWMAN, *M.D.*, Beverly Hills

• **Nevi are the most common tumors of childhood. Pigmented nevi are classified into blue nevi, intraepidermal nevi, junction nevi, intradermal nevi (or common mole) and combination types. Cutaneous malignant disease in children is rare. Malignant melanoma is rare before puberty. Wholesale removal of benign pigmented nevi in children should be condemned. However, junction nevi located on the palms, soles, genitalia or waistline—that is, in areas subject to frequent trauma—should be excised.**

Hemangiomas in infants are the most common tumors for which advice is sought. Not all hemangiomas regress spontaneously, and on occasion the persistence or progression of such a lesion may bring about life-long unsightly deformities. Therapy for this type of tumor is simple when given early in life. Hemangiomas involving the ears, nose, lips or eyelids should be treated at once, preferably within a month of the time they appear.

THE MOST COMMON skin tumors of childhood are nevi, warts and keloids. The recognition and treatment of verrucae are familiar to all of us. Keloids are mentioned because of their frequent occurrence, and also because there have been numerous reports of squamous cell carcinoma developing in scars subsequent to burns. Malignant change usually does not appear until 20 to 30 years after the formation of the scar, and often in association with some additional injury. For practical purposes, however, the ordinary keloid should be considered benign. Irradiation during the first few months of their development is the treatment of choice for keloids; for old lesions, excision followed by roentgen therapy. Solid carbon dioxide is also often effective.

Hemangiomas

Hemangiomas[17] are probably the tumors for which treatment most frequently is sought. There are four main types: (1) The capillary hemangioma or flat type (port-wine stain); (2) the hemangioma simplex or raised type; (3) the deep or cavernous hemangioma; and (4) the combination type.

The flat type is best exemplified by nevus flammeus. Lesions of this type are persistent and rarely disappear. Although some favorable results have been reported following the use of thorium-X, Grenz rays and tattooing, it is the consensus among dermatologists that lesions of this kind should not be treated. Intensive treatment may result in mottled red and white spots, and/or scarring, which may be more objectionable cosmetically than the original disfigurement. Cosmetic pastes such as Cover-mark® very effectively mask lesions of this type. One of the most common congenital defects is a rather dim port-wine mark on the nape of the neck. It is present in approximately one-third of newborn infants. Pratt,[14] who examined over one thousand infants for evidence of nevi, found this lesion on the nape of the neck in 42 per cent of white and 31 per cent of negro children.

The raised hemangioma or strawberry mark is the most common vascular nevus, except the port-

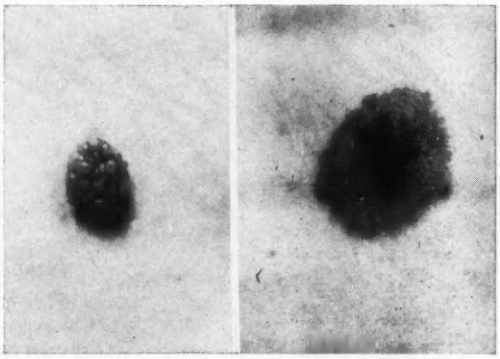
Chairman's Address: Presented before the Section on Dermatology and Syphilology at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

wine mark of the neck previously mentioned. Despite the fact that these lesions may disappear spontaneously, it is advisable in most instances to treat the child at the earliest possible moment. In the case of angiomas that remain static or show signs of regression, a delay in instituting treatment may be permissible. However, prompt measures are indicated when there is evidence of growth. Since a few topical applications of solid carbon dioxide or liquid nitrogen will easily and effectively eliminate tumors of this type, it seems foolhardy to permit such a lesion to increase tremendously in size. Strawberry marks that undergo involution, spontaneously or as a result of trauma, may heal with conspicuous scarring or change into a mixed fibrovascular structure.

It is generally agreed among dermatologists that irradiation, particularly with radium, is the treatment of choice for cavernous hemangiomata (deep type) if given at an early age. The best and quickest results are obtained if treatment is begun before the third month of life when endothelial cells of the vascular channels are still immature. Injection of sclerosing solutions is the next most widely used method of treatment. Not infrequently these tumors disappear spontaneously, but they are likely to leave atrophic or anemic disfiguring scars; or a dangerous hemorrhage may occur. The rapidity of growth of a cavernous lesion may be alarming. Sometimes in a matter of weeks a previously amenable growth may become a difficult therapeutic problem. At the 1953 meeting of the American Medical Association, McCuistion[9] presented 45 photographs of infantile cavernous hemangiomata which persisted into adulthood. His presentation was a striking demonstration for those who maintain that all hemangiomas involute spontaneously. Vascular nevi rarely change to hemangioendothelioma or angiosarcoma.

A review of the medical literature can easily leave one confused as to whether to treat or not to treat cavernous hemangiomas. Obviously not all hemangiomas regress spontaneously. The photographs herewith are only a small number of a collection illustrating their persistence and their devastating life-long effects.

What are the potential undesirable effects of persistent hemangiomas? First, the effect upon the psyche and personality of the school-age child because of an unsightly lesion. Second, lesions that are contiguous to or involve vital organs such as the ears, nose, eyes, lips, breasts or genitalia may interfere with function as well as cause grotesque deformities. Third, treatment at a late stage, such as surgical removal, or irradiation after histologic maturity of the endothelial cells, will bring about a much less satisfactory cosmetic result. Fourth, ulceration may occur, with subsequent unsightly scarring.



Pigmented nevi (common moles) composed of nevus cells confined to the dermis. These never become malignant. They may be left undisturbed, or excised or destroyed if desired.

Treatment given early in life by competent physicians is safe, cosmetically effective and relatively inexpensive. During the past 25 years the author has evolved the following rules of advice for dealing with hemangiomas. Lesions involving the ears, nose, lips or eyelids should be treated at once, preferably within a month of the time they appear. As to hemangiomas appearing on other areas of the exposed skin—the face, neck, decolletage area in girls, the hands and forearms—if there is no sign of regression by the tenth week, treatment should be started without further delay. For lesions appearing on the normally covered portions of the body the risk of an unsightly persistent lesion or scar is of small consequence.

Lymphatic Vascular Nevi

Lymphatic vascular nevi are characterized by dilatation and new formation of lymph vessels. The favorite sites are the neck, the upper extremities and the mucous membranes of the mouth and tongue. These tumors can be divided into simple, cavernous and cystic types. The simple lymphangioma is characterized by grouped, deep-seated vesicles. A resemblance to frog spawn has been noted. The lesions are usually yellowish, but occasionally they are reddish or purplish because of mingling of small blood vessels. When the vesicles are punctured a clear, colorless fluid exudes. Electrocoagulation or solid carbon dioxide applications are usually effective forms of treatment. The cavernous lymphangioma occurs in the form of a circumscribed elastic tumor. The skin over such tumors may be unchanged, or it may be reddened and thickened. They may grow to alarming proportions. The cystic lymphangioma or cystic hygroma is usually located on the neck. These lesions, unlike the cavernous variety, are not compressible. They are cysts with endothelial linings and serous fluid contents, which

Untreated cavernous hemangiomas persisting into adult life. It is believed that proper therapy, early in infancy could have prevented all or part of these deformities. (Courtesy Drs. C. McCuistion, G. Andrews.)

may grow with much power through the tissues of the neck, often downward under the clavicle and into the axilla or pectoral region. If treatment is not given, the infiltration of these cystic growths may result in death. Rarely, malignant changes may occur. Large cavernous lesions and those of the cystic type should be excised surgically. Irradiation is not recommended.

Pigmented Nevi

Pigmented nevi are the most common tumors of childhood.[17] They may be divided into blue nevi, intraepidermal, junction, intradermal and combination types.

The intraepidermal nevus, histologically, shows proliferation of epidermal elements; however, there are no nevus cells. It usually appears as a superficial, verrucous, raised lesion whose color varies from that of the skin to dark brown, or even black. Such nevi frequently appear as linear lesions. They may be present at birth or appear later in childhood. They rarely become malignant. If they do, they may develop into prickle cell carcinoma late in life. These nevi may be left undisturbed or they may be simply and adequately removed by electro-desiccation and curettage for cosmetic effect.

The blue nevus, histologically, is composed of spindle-shaped melanoblasts in the lower two-thirds

of the dermis. There are no nevus cells in this lesion either. Malignant transformation is rare. According to Anderson,[2] malignant change has not been reported in children. However, recognition of this tumor is significant because clinically it is frequently confused with malignant melanoma. Blue nevi are usually sharply circumscribed, round or oval, smooth, elevated papules or nodules. The color is strikingly blue to blue-black or slate gray. If treated, these nevi should be simply removed with a scalpel.

The junction nevus is so named because of the microscopic finding of active proliferating nevus cells at the junction of the dermis and epidermis. As a rule, it appears as a slightly elevated, smooth, pea-size nonhairy lesion, deep brown to black in color. The most common sites are the face, hands, lower extremities and genitalia. Great interest centers about this nevus because it is considered to be the forerunner of malignant melanoma. However, in children it does not have the same connotation that it does in adults. According to Stegmaier and Montgomery,[18] all nevi in children show junctional proliferation; hence, proliferation should not be erroneously interpreted as active growth or as evidence of a premalignant state. The consensus is that the junction nevus when treated, should be surgically excised.

The term intradermal nevus implies that the nevus cells are confined to the dermis. It is this kind of lesion that is referred to as the "common mole," and it is the most common of all nevi. Histologically, during childhood they show junctional activity. However, as the child matures there is a "dropping" of the nevus cells, which finally results in a clear epidermal-dermal zone. The mole may vary in color from that of normal skin to black, but usually it is brown to brownish-black, is elevated and has a smooth, warty or papillomatous surface. The lesion may or may not contain hair. Pigmented nevi of this type almost never become malignant. Hence, they may be safely treated by any surgical method, refrigeration or excision, depending upon the location of the mole and the technical preference of the clinician.

The term *combination nevus* or compound nevus usually refers to moles with the histologic features of both the dermal and the junction nevus. Spitz[17] said that this microscopic pattern occurs in 98 per cent of moles in children and in only 12 per cent in adults. In children, the compound nevus may be of uniform brown color and be nonhairy and elevated. Clinically, it is usually impossible to distinguish combination nevi from the other types previously discussed. If mixed type is suspected, surgical excision is preferable.

Clinical differentiation of the different types of pigmented nevi is not always easy. Even a well trained and experienced physician must frequently depend on histologic examination for exact diagnosis. It is almost unknown for moles that are pedunculated, that have a verrucous surface or that contain hair to undergo malignant change.[8] The presence of a tuft of hair on a mole is a fairly reliable indication that the lesion is an intradermal nevus, whereas the lack of elevation of a mole suggests that it may be a junctional nevus. Moles on the palms, soles and genitalia are junction nevi in most cases.

There is considerable difference of opinion and misunderstanding regarding the management of moles. The ordinary pigmented nevus need not be removed except for cosmetic reasons. Many clinicians advise the removal of pigmented moles that are present on the palms, soles, toes and genitalia. It is probably good practice to remove them if they are subject to trauma. If secondary infection supervenes, they should be eradicated when the infection subsides. There is universal agreement that when a mole suddenly changes in size or color or bleeds or becomes ulcerated, excision is indicated. If a pigmented nevus is clinically suspicious it is preferable to remove it before puberty. In spite of the fact that junctional activity is observed in practically all moles in children,[17,18] malignant melanoma in childhood is rare. Only a few such instances have been observed. There is a popular fear that disturbing a mole in any way may be dangerous. Slaughter[16] stated that he had never observed and in a survey of the literature had been unable to find report of an authenticated instance of malignant change in a benign nevus after incomplete removal with an electric needle or by cautery or excision. Similarly, removal of a lesion for biopsy neither induces malignant change in a nevus nor causes metastasis if melanoma exists.

The halo nevus is a small, round spot with a central brown or dark brown maculo-papule surrounded by a white halo of depigmentation. Gradually the pigmented portion of the lesion disappears centripetally, leaving in its stead a spot of leukoderma. Histologically, this is a nevoid lesion and requires no treatment.

Xeroderma pigmentosum is a rare congenital anomaly with photosensitivity. Clinically, the dermatosis bears a decided resemblance to chronic radiodermatitis and farmer's or sailor's skin. It is a true precancerous lesion of childhood, since epitheliomas generally develop in the affected areas. Squamous and basal cell carcinomata usually result. The development of melanoma and fibrosarcoma has also been reported. The patients seldom reach adult life.

Von Recklinghausen's disease or neurofibromatosis, another congenital anomaly, is mentioned because sarcomatous transformation of fibromata can

occur. It has been stated that malignant change develops in 13 per cent of all cases, but this would appear to be greater than the actual incidence, probably owing to the fact that complicated cases are more likely to be reported than the uncomplicated.

Cancer in Childhood

Cancer in childhood has been more frequently emphasized in the literature during recent years. This attention is no doubt well deserved, as cancer is now the second leading cause of death in the age group of one to fourteen.[6,17] Twenty years ago it was not listed even among the first ten causes of juvenile mortality. It should be pointed out, however, that leukemia accounts for almost half of the deaths caused by malignant disease in childhood. The tumors that are essentially those of infancy and early childhood are neuroblastomas of the retina, mixed malignant neoplasms (Wilms' tumor) and neuroblastoma of the adrenal and other parts of the central nervous system.

Wells[19] made an exhaustive, critical review of the literature on the occurrence of congenital malignant neoplasms. He said that of about 250 neoplasms reported present at birth, only 66 could be considered established beyond possible doubt. Nearly half of them were sarcomas. Of all malignant tumors, sarcoma is practically the only one common in adult life which is likely to be present at birth. Wells found reports of only two cases of squamous cell carcinoma occurring at birth—one of the lip and another of the tongue. He stated that until 1940 there was only one case (reported by Coe) that may have been a prenatal malignant cutaneous melanoma. He cited only four cases in which he felt there was strong enough evidence to indicate that the intrauterine transmission of malignant growth from mother to fetus had occurred. The malignant diseases transmitted included carcinoma, lymphosarcoma and melanosarcoma. Dargeon[5] recently reported another instance of transplacental transmission of malignant melanoma.

Cutaneous malignant tumors are rare at any age before puberty. Sarcomas of various types (round cell, spindle cell, giant cell) occasionally occur in children. The lesions may be primary or secondary, single or multiple. Cutaneous squamous cell carcinoma occurring other than when associated with xeroderma pigmentosum, is exceedingly rare. A few instances of basal cell carcinoma in children have been reported.[12,13,15] These occur as numerous lesions resembling nevi, sebaceous adenomata and cylindroma. Epitheliomata of this type are considered to be nevoid tumors, and they remain benign even into adult life, even though the histologic features are typical of basal cell carcinoma.

A discussion of melanomas in childhood would be incomplete without including the so-called juvenile melanoma. Fatal malignant melanoma in childhood is extremely rare. Allen and Spitz[1] were able to collect only five cases of fatal malignant melanoma. Montgomery[18] observed only three such cases at the Mayo clinic. The juvenile melanoma ranges in size 0.5 cm. to 3 cm. in diameter. The lesion is elevated, firm, smooth or warty. It may be skin colored, pink or red just as frequently as brown or black. Spitz now believes that two-thirds of juvenile melanomas may be diagnosed on the basis of histologic features but that the remaining one-third cannot be distinguished from the malignant melanoma of adult life. In the latter case, the prepubertal age of the patient dictates the diagnosis of juvenile melanoma. There is a striking rise in the death rate from melanomas after puberty. Before adolescence, melanoma remains benign, treatment by simple wide excision is adequate. The much discussed malignant melanoma is said to arise from pigmented nevi in 30 to 60 per cent of cases.[10] Physicians generally are familiar with the description of the blue-black, steel-blue or black, flat or elevated nodule. However, a rapidly growing lesion may be light brown. An amelanotic melanoma may be flesh colored, pink or red. Only 2 per cent of melanomas are radiosensitive; hence, irradiation is contraindicated. Survival rates have not been improved by mutilating operations. Becker, and others have expressed belief that the best results have followed removal of the primary tumor including a large surrounding area with lymphatic channels and regional lymph nodes en bloc, when indicated.

Under the term lymphoblastoma most dermatologists include leukemia cutis, Hodgkin's disease, lymphosarcoma and mycosis fungoides. Leukemia is the most important, since it accounts for almost half of the cancer deaths of childhood. The majority of cases are of the acute lymphocytic type which are rapidly fatal. The usual symptoms in all forms of leukemia are pallor, weight loss, sore mouth or throat, dysphagia, bleeding gums, ulcerogangrenous stomatitis, bone destruction, petechiae, nodules and purpuric spots. Petechiae and ecchymosis are the most common cutaneous lesions, according to Bufkin and Davison.[3] Aminopterin, amethopterin and other folic acid antagonists will probably prolong life the longest. Corticotropin (ACTH) and cortisone may cause remission for as much as 33 weeks in lymphatic leukemia. Urethane is the least toxic of the chemotherapeutic agents.

Hodgkin's disease or lymphogranulomatosis is the next most common of the lymphoblastomas. It usually starts in the retroperitoneal and mesenteric lymph nodes, extends to the left cervical nodes and

then to axillary, inguinal and mediastinal nodes and spleen.[3] Observation of Reed-Sternberg cells in lymph node biopsy is diagnostic. Until 1946 only 233 cases of Hodgkin's disease were reported in children. Eighty-three per cent of the cases occurred in males.[4] Male predominance is noted also in lymphosarcoma and leukemia. The disease is rare in negroes. Cutaneous involvement is less common in children than in adults; it consists of pruritic, macular and papular nonspecific lesions. There is a tendency to lichenification of the skin, due to scratching. Specific infiltration of the skin is uncommon. Occasionally, the disease may be complicated by herpes zoster. Hyperpigmentation is common in Hodgkin's disease but comparatively rare in other diseases of the lymphoblastoma-leukemia group. Pruritus and nonspecific eruptions also occur most frequently in this disease. As with other malignant neoplasms, the lymphoblastomas tend to develop more rapidly in children than in adults. However, lymphogranulomatosis offers a far better prognosis for palliation and survival than does lymphosarcoma or leukemia. The treatment of choice is irradiation. Nitrogen mustard, especially triethylene melamine (TEM), may also be effective in making the patient more comfortable and in prolonging life.

Under the broad term lymphosarcoma, Eller[4] includes reticulum cell sarcoma, lymphosarcoma of the lymphocytic type, and follicular lymphosarcoma. There are no sharp lines of differentiation between these conditions. At times it is even impossible for pathologists to distinguish Hodgkin's disease from lymphosarcoma or the latter from lymphatic leukemia. Transition from one type of lymphoma to another also occurs. The most frequently involved sites of lymphosarcoma in children are the neck, abdomen and retroperitoneal regions. This condition should be kept in mind if there is a complaint of swelling anywhere in the body. Metastatic nodules are the most common dermatologic finding. The nodules may be superficial or subcutaneous. They are firm but not as hard as those of metastatic carcinoma. They are usually bright red, but may have a blue tinge. Radiotherapy is still the treatment of choice. Craven advocated surgical excision when feasible, followed by irradiation. In his experience, as well as that of other investigators, the cases of lymphosarcoma (or Hodgkin's disease) in which there was long survival and even apparent cure, were those in which the disease was treated aggressively while still early and localized. Nitrogen mustard and TEM have been valuable as alternative therapeutic agents and at times have made resistant lymphomatous tissue amenable to irradiation again.

Three conditions considered to be variants of lymphosarcoma will be briefly mentioned because they have been reported in preadolescent children. They include giant follicular lymphoma, Spiegler-Fendt sarcoid and lymphocytoma cutis. These conditions are rare and run a comparatively benign course. Giant follicular lymphoma occurs predominately in the lymph nodes and in the skin. The dermal lesions are characterized by groups of slightly raised, small, brownish-red nodules. The number of lesions is small, and the face is the site of predilection. It is one of the least malignant of the lymphomas but it may progress into other forms of lymphoblastoma and ultimately to death. There are said to be two forms of Spiegler-Fendt "sarcoid," a localized and a disseminate form. The localized form is relatively benign. It is characterized by grouped, reddish to purplish nodules or plaques that suddenly appear on the face and elsewhere. The lesions are few in number and resemble the sarcoid of Boeck clinically; hence, the inappropriate term *sarcoid* appended to the title. The disseminate form may involve internal organs as well. Lymphocytoma cutis is a benign lymphoma. The lesions are localized lymphocytic infiltrations limited to the skin, resulting in bluish or brownish-red patches which rarely exceed the size of a fingernail. They are usually located on the face, scrotum or extremities. The lesions are slow growing and remain static after reaching a certain size. This condition may be treated satisfactorily by surgical excision or irradiation.

Mycosis fungoides is the last major member of the lymphoblastoma group. The skin is primarily involved. The course is the slowest, survival is the longest, and it is least malignant of the major members of the group of lymphoblastoma. It is essentially a disease of adults although it occasionally occurs during the first two decades of life. It characteristically passes through three stages in its evolution: (1) A premycotic stage, which is manifested by a nondescript pruritic dermatitis; (2) an infiltration stage, characterized by thickened plaques; (3) and finally a tumor stage. Irradiation is the treatment of choice.

It is common knowledge that some lymphoblastomas change from one type to another, and that transition forms exist between all the groups. It should be emphasized that the cutaneous manifestations of the lymphomas are not specific or clinically diagnostic, with the exception of mycosis fungoides.[11] The specific classification of a lymphoblastoma may frequently be impossible even pathologically. The pathologist, at times, can only submit a diagnosis of lymphoblastoma.

436 North Roxbury Drive, Beverly Hills (Newman).

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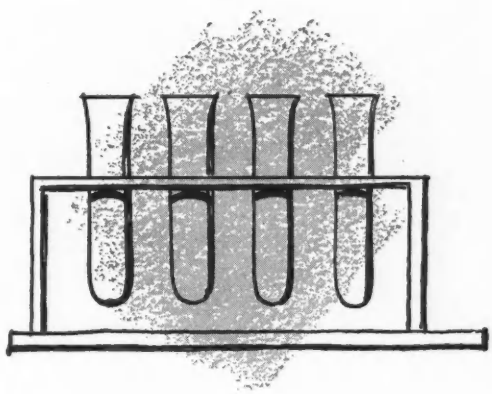

Strawberry Hemangiomas

The Natural History of the Untreated Lesion

ALVIN H. JACOBS, *M.D.*, San Francisco

• **A review of the literature on the natural history of strawberry hemangiomas revealed overwhelming evidence of the satisfactory spontaneous involution of over 95 per cent of these lesions without the scarring and danger of other sequelae inherent in the various forms of treatment.**

In a study of 105 strawberry nevi observed for more than one year, 97 per cent of the lesions had either completely disappeared or were regressing satisfactorily.

A cross-section study of 1,735 consecutively examined children in routine pediatric practice showed hemangiomas to be present in 10.1 per cent of all infants from birth to one year of age but that this incidence drops to 1.5 per cent in children over five years of age, confirming the fact of spontaneous involution.

THE DIVERSITY of opinion concerning the proper management of the common strawberry (cavernous) hemangioma arises from the continued lack of appreciation of the natural history of this lesion. It is the purpose of this communication to call attention to the high incidence of this kind of nevus in infancy and to reaffirm the superior cosmetic results which nature regularly affords when these lesions are not treated.

The lesions to be considered are not the flat vascular nevi (spider nevus, erythema nuchae or port-wine stain), nor the multiple hemangiomatous syndromes, but rather the raised vascular nevi (strawberry marks, cavernous hemangiomas).

Hemangiomas are not truly neoplastic despite their semblance of progressive and invasive growth, but are, rather, malformations originating from a mass of vasoformative tissue misplaced or unused during fetal development.[6] Enlargement and extension of them are due to canalization and establishment of blood flow in fresh parts of an already existing malformation. The extent of the lesion is, therefore, probably largely predetermined by the distribution and amount of the unused or misplaced vasoformative tissue.

Strawberry nevi may be found on any part of the body surface, appearing first at or soon after birth as sharply delineated pale areas which become bright red, raised and tense within the first few weeks. A firm subcutaneous (cavernous) mass often develops under the surface strawberry lesion and can be felt extending out beyond the area visibly involved. Growth is usually rapid during the first three to six months of life. Then it slows and early signs of involution appear between six months and one year of age. This spontaneous regression is first marked by the lesion's becoming less tense and less bright in color. Frequently at this time small spots of blue discoloration appear, which enlarge and coalesce during the second year. Soon these fade, leaving islands of normal appearing skin. By the time the child is four or five years of age, most of the dull remnants of angioma have disappeared, leaving only more or less atrophic skin which gradually reverts to normal texture. In most instances after several years even the child's mother can no longer recall exactly where the lesion was.

The literature of the past 20 years contains many excellent documentations of the natural regression of angiomas. In fact, as far back as 1900, Duncan[5] in a monograph on vascular lesions, recognized the almost universal tendency of these lesions to spontaneously involute. Stelwagon[10] in 1902 wrote of natural regression of angiomas in his textbook of dermatology. The first actual statistical study of this phenomenon was that of Lister[8] in 1938. He reported on 77 patients with 93 strawberry hemangiomas. Of these, 92 either regressed completely or were showing definite signs of spontaneous regression. Lister concluded, "No exception has been found to the rule that nevi which grow rapidly during the early months of life subsequently retrogress and disappear of their own accord, on the average about the fifth year of life."

By 1942, the phenomenon of natural regression was recognized by some dermatologists, as evidenced by the statement of Sulzberger and Wolf:[11] "Fortunately, most hemangiomas of the cavernous type 'heal' spontaneously with or without ulceration. . . .

From the Department of Pediatrics, Stanford University School of Medicine, San Francisco 15.

Presented before a Joint Meeting of the Sections on Dermatology and Syphilology and Pediatrics at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

The presentation of this study was made possible in part by a grant-in-aid from the Mead, Johnson Co., Evansville, Indiana.

The regressive changes often appear first in the center. . . . All traces of color have usually disappeared by the fifth year. . . . Since this is the usual course without treatment, drastic measures . . . are often inadvisable, and treatment should generally be expectant and conservative."

Bowers[3] in 1951 also stated that the great majority of raised (cavernous) nevi resolve spontaneously—"a happy outcome which differs from that of many forms of treatment in that it is unaccompanied by anything more than the faintest scarring. The ordinary cavernous lesions are never seen in adults."

Brain and Calnan[4] in 1952 reviewed 614 cavernous angiomas, of which 295 were treated with radium, 98 with x-ray, 74 with radium and x-ray, and 147 were not treated; and as to this last group, they stated, "The ultimate results were equally satisfactory."

Ronchese[9] in 1953 published an excellent report illustrated by many photographs of spontaneously involuting hemangiomas. He was able to get follow-up information on 33 of the 59 cases in which he had left the lesion untreated. In 24 of these cases the lesion had disappeared completely, in four had not changed and in five had been treated surgically or by radiation elsewhere.

With the aid of school health officers in the Province of Gelderland, Netherlands, Van Der Werf[12] was able to examine 60 school children with remnants of spontaneously involuted strawberry marks and 266 children who had received various forms of treatment. The results were classified as cosmetically satisfactory, moderately satisfactory or unsightly. The results of this survey clearly showed the superior cosmetic results in the untreated cases (Table 1).

In a controlled study, Walter[14] reported 88 cavernous hemangiomas treated by x-ray and 83 untreated. At the end of five years, 96 per cent of the untreated patients and 94 per cent of the treated ones had satisfactory results. Walter concluded that x-ray speeds resolution at first but does not alter the eventual result, and that nature leaves better cosmetic results than x-ray therapy.

Still another well studied series was reported in 1953 by Wallace,[13] who followed 208 patients with strawberry nevi, many multiple, and 98 patients with 121 cavernous nevi, of which 78 had some superficial capillary element. The period of follow-up was seven years, none of the patients receiving any treatment in that period. His results (summarized in Table 2) clearly demonstrated the high proportion of satisfactory results from spontaneous regression.

Recently Lampe and La Tourette[7] reported on 112 cavernous hemangiomas in 84 patients with no treatment. In all but one case there was substantial regression by the time the patient was five years of age. This study was illustrated with a series of excellent color photographs demonstrating spontaneous regression. In another recent publication, Bivings[2] reported on 22 years' observation covering 236 cases. He emphasized the superior cosmetic results of spontaneous resolution and also presented statistical data showing a drop in frequency of these nevi from 8.7 per cent in the first year of life to 0.55 per cent in patients seen after the second birthday. This is strong supporting evidence that spontaneous regression does take place.

TABLE 1.—*Results in Cases of Treated and Untreated Strawberry Hemangioma (Van Der Werf[12])*

	Untreated	Cautery	Radiation	Operation
Number of cases	60	68	62	136
Satisfactory	46	24	15	30
Moderately satisfactory	12	34	25	56
Unsightly	1	10	22	50

TABLE 2.—*Results, as Reported by Wallace,[13] in Series of Untreated Cases of Nevi*

	290 Nevi With No Deep Element	121 Cavernous Nevi
Impossible to detect site of nevus	120	15
Only slightly atrophic skin remains	157	78
Partial involution—not enough remaining cosmetic disability to require treatment	10	20
No involution	3	8

In a recent report from the Department of Radiology at Duke University, Abdulkerim, Boyd and Reeves[1] gave data on 323 cases of hemangioma of the skin, all treated with either roentgen irradiation or radium. The period of follow-up was one to twenty years, and the results were as follows: Satisfactory in 72.5 per cent of cases, fair in 22.9 per cent, and poor in 4.6 per cent. The results obtained with radiation therapy, then, were no better than with no treatment as reported by many other investigators. In addition the Duke group mentioned many late complications of radiation, including 18 cases of serious scarring requiring surgical correction, a case of puckering of the lip, one case of shortening of the leg with atrophy of the leg muscles, one case of enlargement of a treated breast and four cases of unsightly telangiectasis.

REPORT OF PRESENT STUDY

The present series consists of 142 patients, seen in private pediatric practice, who had 156 strawberry hemangiomas, including both superficial and deep lesions. Of the 142 patients, 91 were females and 51 males. The 156 lesions were distributed as follows: Head and neck, 50; upper extremities, 21;

trunk, 59; lower extremities, 26. It was possible to get follow-up data on 105 of the lesions for periods of one to five years. In the remaining cases the patients either were treated elsewhere or moved to other communities. In all cases, Kodachrome transparencies were made of the lesions at from three-month to 6-month intervals so that the course of involution could be recorded and objectively observed.*

Of the 105 lesions in which more than a one-year follow-up was possible, 47 had completely disappeared and another 54 had regressed to the point that no cosmetic detraction remained. Only four of the lesions failed to show signs of involution in over one year, and these were all very small lesions which were present at birth and did not grow disproportionately during the first months of life. Thus, of 105 untreated hemangiomas observed for one year or more, 97 per cent were either entirely gone or had regressed to the point that eventual resolution was certain.

In order to gain further evidence on this matter of spontaneous involution as well as information as to the prevalence of this type of lesion, a cross-section study was carried out in which the incidence of strawberry nevi or of detectable remnants of nevi at various ages was recorded in a series of 1,735 consecutive children examined in routine private practice. The results are shown in Table 3.

The striking feature of this study was the high incidence of the nevi in infants (10.1 per cent) as well as the clear evidence that the great majority of nevi disappear with no recognizable residual by five years of age.

CONCLUSION

If a strawberry (cavernous) hemangioma appears during the first few weeks of life, and grows during the first few months of life, then treatment should be withheld, since there is a remarkable tendency for this type of lesion to regress spontaneously.

595 Buckingham Way, San Francisco 27 (Jacobs).

*A selection of these color transparencies was shown as an exhibit at the Convention of the California Medical Association in May, 1955 and at the Academy of Pediatrics in October, 1955. A portion of this exhibit has also appeared as a Clinicolor Feature in Modern Medicine, May 1, 1956.

TABLE 3.—*Incidence of Strawberry Nevi in 1,735 Consecutive Children Examined in Routine Pediatric Practice*

	Number of Children Examined	Incidence of Angiomas (Per Cent)
Birth to 1 year	645	10.1
1 to 3 years	484	8.1
3 to 5 years	274	2.9
5 to 15 years	332	1.5

ACKNOWLEDGMENT

The author wishes to express his gratitude to Dr. Eugene M. Farber, Head of the Division of Dermatology, Stanford University School of Medicine, for his encouragement and assistance.

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Psychiatry and the Law

MARK ZEIFERT, *M.D.*, Fresno

• **In *Rex vs. Arnold* (1724) it was held that to avail himself of the defense of insanity "a man must be totally deprived of his understanding and memory, so as not to know what he is doing, no more than an infant, a brute, or a wild beast." Although there has been some modification of this formula in most jurisdictions, the courts still operate under the McNaghten Rule (1843) which is no more logical and actually is more difficult to apply. That such a situation exists in 1956 is a reflection on the indifference of society—and particularly the courts which it elects—as well as on the failure of modern psychiatry to communicate its viewpoint to society. If we are to correct the sad formulae of the "right and wrong" and "policeman at the elbow" tests, we must have more study and better methods of communication in this area.**

A similar state of confusion exists in the methods of commitment of mentally ill people to psychiatric hospitals. The methods prescribed by law are archaic and cruel—and again reflect the failure of modern psychiatry to communicate its understanding to the legislatures and courts.

There are many other areas of conflict between law (which looks to the past for its insights) and psychiatry (which seeks for its concepts in the current scientific advances).

THERE WOULD be no need for law were it not for the areas of behavior with which psychiatry is concerned—the attributes of feeling, thinking and acting which are at once characteristic of human life and which create the need for the establishment of law in societies of two or more people. Normally, we recognize the need to mitigate or surrender certain personal sovereignties in order that we may derive comfort from the knowledge that we need not constantly concern ourselves with fear of personal danger. Persons who are incapable of this kind of understanding become offenders, and society segregates, punishes or executes them. Although we may not be aware of the presence of law, we quickly sense its necessity when it is absent.

It is impossible to cover the entire subject of the effect of human behavior on other humans. Furthermore, there are so many cross disciplines to be invoked in such study that I am not qualified to attempt it. In sad fact, it is most difficult for me to discuss even the area of impact between the psychiatrist and the lawyer because I am not trained in law. (In this respect I confess my inadequacy since some lawyers seem to have no difficulty in discussing psychiatry.)

It is my contention that the difficulties between psychiatrists and lawyers are as much the fault of the psychiatrists as of their professional colleagues. We tend to assume more science in our specialty than there actually is. We make the further false assumption that because a thing makes scientific sense to us, it must necessarily make scientific sense to all others—including those who are not trained in science. When a nonscientist fails to grasp a scientific fact, we psychiatrists tend to revolt and retreat. Such behavior is not only not becoming to those who claim to have knowledge of psychological matters, but it also defeats the possibility of instilling insight into and bringing the law around to a recognition of modern scientific fact. Since the law is in charge and since in actual practice (whether we like to think so or not), might makes itself "right," the psychiatrist is inevitably forced to artificially mold and compress scientific concepts into a philosophy and language imposed by the legal code—even though this may result in scientific nonsense. A failure to consider this results in personal feelings of suspicion and hostility between the professions.

There is a general tendency to reject that which we do not understand—particularly if we think we do understand it. As an example of this, permit me to quote from a grand jury report:[1] "One local superior court judge felt that the use of a psychiatrist by a judge invaded the personal rights of persons appearing before him and indicated that judges could probably handle the problems as well as a psychiatrist." That this report is dated 1949 rather than 1849 is a reflection of failure of communication between psychiatry and the legal profession. It is no more realistic to assume that a judge by virtue of his office is less an invader of personal rights than a psychiatrist, or that a judge by virtue of his office acquires the specialized knowledge of a psychiatrist, than to assume that a military officer becomes a gentleman by virtue of his commission.

Let me cite another example. A court issues an order that patients who have been taken into custody and committed to a state hospital may not be scientifically demonstrated for teaching purposes to a class of upper division and graduate students in clinical psychology. Since mental health is the num-

Presented before the Section on Psychiatry and Neurology at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

ber one medical problem of the nation and since the need for school psychologists is enormous, such an order results in the fiction of having to demonstrate a patient before a legal petition for his commitment is filed—or waiting until the patient is delivered by the sheriff to the state hospital and demonstrating him there. In short, what is illegal in one jurisdiction is legal in another. There is only one way to train people in clinical subjects and that is to demonstrate patients. Failure to train students in this manner results in swivel-chair psychologists of a type one still unfortunately sees in some schools and probation departments. These are persons who have learned out of books but not out of people. And yet, the very court that forbids the demonstration of patients to these professional students may find itself rendering judgment on the basis of a report submitted by the victim of such educational malnutrition. The court is scarcely to be blamed for such thinking. It is trained in legal ritual and is unaware of the fact that in the United States the teaching of clinical psychiatry and psychology has traditionally been by exposing the students to the actual disease.

Since the law is a philosophical concept of that which is right and that which is wrong, it is deeply imbedded in tradition, and its dependence on precedent and its apparent need to worship at the altar of antiquity inevitably results in a time-lag between the impact of scientific discovery and modification of law to meet these discoveries. I might cite, for example, the laws of England and Canada where suicide is still "self-murder" and as such is denounced as a crime and is punishable. To come closer to home, let us consider the case of *Barry vs. Chaplin*[2] in 1946 where it was held that Chaplin was the father of Barry's child on evidence of copulation and of physical resemblance, despite the fact that scientific blood tests showed conclusively that he could not have been the father. Fortunately the code was changed in 1953 and now recognizes these scientific tests—but the sad fact is that scientific fact is not fact until it has been declared fact by the Code or by judicial decision.

We are puzzled also by the court which declares a man to be a sexual psychopath and commits him to a special treatment unit in a state hospital. After his return to court some years later with a certificate of recovery from the hospital, he is sentenced to state prison with the statement, "The last two years were for your benefit and now you can spend some time in prison for the peoples' benefit." Will the people really benefit from this? Is this likely to assist in rehabilitating the man who has already been medically certified as recovered? Or is it really the application of the archaic principle of lex talionis,[3] "life for life, eye for eye, tooth for tooth, hand for hand, foot for foot, burning for burning, wound for wound, stripe for stripe?" I am tempted here to quote Arnold Toynbee's comment, "One way of judging a civilization is by what it does with its convicted criminals."

The area of therapeutic abortion is interesting. A 27 year old woman was the victim of a criminal assault which included burglary and rape and resulted in pregnancy. One can imagine the mental state of anyone who is raped, but to have to look forward to the prospect of giving birth to such a child and of raising this child along with the issue of one's married state would require a most remarkable emotional adjustment. Under the law this woman has no right to choose whether or not she wishes to give birth to this child, since the Penal Code[4] declares that abortion may not be performed "unless the same is necessary to preserve her life." Therapeutic abortion for the preservation of mental life is apparently forbidden.

To continue with the inconsistencies which disturb us, I will call attention to the Welfare and Institutions Code,[5] which specifies that "medical examiners" to serve on panels which recommend the commitment of mentally sick people shall be physicians who "have been in active practice of their profession at least five years." There apparently is no other qualification except that they be of good repute. On the other hand, the Penal Code[6] requires that when a defendant pleads not guilty by reason of insanity, the court must appoint two "alienists" to investigate his sanity. Similarly, the Code[7] specifies that no less than two "psychiatrists" shall examine convicts suspected of sexual psychopathic states. In short, if one wishes the luxury of examination by experts in psychiatry, one must be careful to commit a crime.

We are confused by other legal determinations. In December 1955 a man certified as mentally ill was committed to a state hospital. Subsequently, on a writ of habeas corpus, another court discharged the patient on the ground that he had been illegally detained because no notice was served on his wife that he was to undergo a hearing for mental illness. Within a few hours the patient went to the home of the student who had testified in his behalf, choked him, and said, "I could kill you, you know." Granted that a technical violation occurred, it would seem to a psychiatrist that the logical thing would be for the court to admonish and instruct the officials required to serve such notice and to proceed to try the case on whether the man was mentally sick and dangerous or not. Instead, the baby was thrown out with the bath.

The confusion in which the psychiatrist finds himself does not end here. A "sexual psychopath"[8] is "any person who is affected in a form predisposing to the commission of sexual offenses and in a degree

constituting him a menace to the health or safety of others with any of the following conditions: (a) Mental disease or disorder, (b) psychopathic personality, (c) marked departures from normal mentality." This category is differentiated in the Code[9] from a "mentally abnormal sex offender," who is defined as "any person who is not mentally ill or mentally defective." We have difficulty in determining how a man may be "mentally abnormal" and at the same moment be "not mentally ill or mentally defective."

How are we to convince the court that a narcotic addict who engages in shoplifting or prostitution in order to obtain the money with which to buy drugs is not "of bad repute or bad character?"[10] Where such a person voluntarily applies for commitment to be cured of addiction, a record of criminal behavior in order to satisfy the need for narcotics nullifies the patient's final decision that his is a bad way of life and that he wishes to have help to correct it. In chronic alcoholism the very same prerequisite exists with the additional requirement[11] that before a judge may make the commitment there must be reasonable ground for believing that, if committed, he will be "permanently benefited" by treatment. The strict application of this rule would preclude anyone's commitment since no one can certify that there will be "permanent" benefit.

What are we to do with the hypothetical question which when prepared by the prosecution is bound to result in one type of answer and when offered to the same witness by the defense is so prepared that it is bound to result in the opposite answer. Is not this the cause of headlines protesting the "battle of experts" rather than the suspicion that there is venality among them? How can anyone really believe the fiction that a hypothetical question that takes hours to read can be clearly understood while one listens to it for the first time, without further study, and that the answer to it can be a sensible one? Yet we are expected to be able to do this, and if an expert were to ask for several hours in which to review the question, he would be held up to the jury as a slow-witted fool.

The most common method of admission to a state hospital is on judicial order. The patient is taken into custody by a peace officer and placed in detention, usually in a county hospital, but where no such facility exists, a section of the jail[12] is designated for this purpose. The paranoid who is confined in a jail has no difficulty in deciding that his delusion that he is being followed by law officers who mean to persecute him is a fact. The patient admitted to a county hospital arrives at the same conclusion but only after a period of confusion during which he wonders why a peace officer should serve him with legal papers, arrest him, and then conduct him to a hospital. In either case, the delusional idea is reinforced. In some counties the patient is conducted to the courthouse for his hearing. Rarely does the patient consider it a civil process; witness the frequency with which judges have to reassure them that this is not a criminal proceeding. If the patient is *obviously* sick, the "defense" may resort to trying the integrity, industry, intelligence and competence of the experts instead of the issue of the patient's mental health. If he "wins" his case, the patient loses his opportunity for treatment. In substance he retains an attorney to "protect" him, with the result that he is deprived of the protection which he really needs. In any event, demand may be made for trial by jury. In no other type of illness is the decision as to diagnosis and treatment left to 12 people who are carefully selected for their ignorance of the subject.

In the judicial procedure even after the patient has been found mentally sick, the requirement of the law is that the court intone: "It is further ordered and directed that the sheriff of this county take, convey, and deliver said person to the proper authorities of the hospital or establishment designated herein, to be cared for as provided by law." In substance, after all the explanation is made to the patient that this is a civil procedure designed to provide him with treatment and that he is not considered to be a criminal, he is told that he will be delivered by a sheriff. Why he is not given the dignity of care and transportation by hospital personnel rather than a peace officer is not clear to the psychiatrist.

Since only 3 per cent of patients actually require judicial commitment, were the law altered to permit their admission on the certificate of a physician—as in New York—most patients could receive treatment in this way. If the objection is raised that venality on the part of the physician might enter into confinement without judicial supervision, the answer is that this method of admission to private sanitaria has been going on for years, and so far as I know there has been no scandalous behavior associated with it. An impossible conspiracy between psychiatrist and state hospital would have to exist to "railroad" patients. Besides, mail addressed to public officials by patients in state hospitals is not censored, the writ of habeas corpus is available, and a patient admitted on a physician's certification would always have access to it.

The area which has provided the greatest difficulty in communication between lawyer and psychiatrist concerns tests of criminal responsibility. In the seventeenth century, Hale[13] held that "absolute madness," a "total deprivation of memory," would excuse a criminal act. In *Rex vs. Arnold*[14] (1724), the court held that to avail himself of the defense of insanity "a man must be totally deprived of his

understanding and memory, so as not to know what he is doing, no more than an infant, a brute, or a wild beast." In 1800, Hadfield[15] considered himself to be the saviour of mankind and felt that he had to become a sacrifice just as had Jesus Christ. To attain his end he needed to be legally executed and as a result of this reasoning he planned and attempted to assassinate the king. In his defense the theory was offered that a man could know the difference between right and wrong, could understand clearly the nature of the act he was about to commit, could carefully plan and execute the act, and yet, if the act was the result of his mental disorder, he should not be considered criminally responsible. The jury agreed and found him not guilty by reason of insanity.

In 1843 McNaghten killed Drummond. Following his trial and acquittal on the ground of insanity, the House of Lords requested the judges of the common law courts to formulate rules for the determination of criminal responsibility. Despite the sensible and scientific formula of the Hadfield case, the so-called "right and wrong test" or McNaghten Formula[16] evolved from this. It declared in substance that to avoid criminal responsibility one must have suffered from defective reason due to disease of the mind to the extent that the accused did not know the nature or quality of his act, or, if he did know it, that he did not know that what he was doing was wrong. That this definition is followed to this day presents an interesting example of the cold, dead hand of legal tradition reaching out ever since 1843 and controlling the thinking of the courts despite the fact that science has made enormous advances.

One notable exception is *State vs. Pike*[17] (1869) in New Hampshire, where the rule has been that insanity as a defense is one of fact rather than law and a finding by the jury that an act was the product of mental disease establishes the defense of insanity. A similar rule prevails in Scotland, Denmark, Belgium, France, Netherlands, Norway, Switzerland, Germany and Egypt.

Among eminent judges who have written on this subject may be found Justice Cardozo,[18] who stated: "Everyone concedes that the present definition of insanity has little relationship to the truths of mental life. If insanity is not to be a defense, let us say so frankly and even brutally, but let us not mark ourselves with a definition that palters with reality. Such a method is neither good morals nor good science nor good law." More recently, Sobeloff,[19] Solicitor-General of the United States, wrote: "The McNaghten rule requires medical witnesses to testify in terms that to them are artificial and confining. A doctor can offer expert judgment when he talks of illness, disease, symptoms, and the like. . . . If the wrong questions are asked, it should surprise no one if wrong answers are given." What is referred to here is the fact that the right or wrong test demands of the psychiatrist that he hold himself forth to be expert in the field of morality—something which he is not. It fails to consider modern constructs in psychiatry, such as the wholeness of the personality and behavior and the abandonment of the concept of monomania. In this connection the United States Court of Appeals[20] stated, "The modern science of psychology does not conceive that there is a separate little man in the top of one's head called reason whose function it is to guide another unruly little man called instinct, emotion or impulse in the way he should go." In *Durham vs. United States*[21] (1954) the same court argued: "By its misleading emphasis on the cognitive, the right-wrong test requires court and jury to rely on what is, scientifically speaking, inadequate and most often invalid and irrelevant testimony in determining criminal responsibility. In attempting to define insanity in terms of a symptom the courts have assumed an *impossible* role, not merely one for which they have no special competence." For this reason the court invoked its inherent power and established the following rule: "It is simply that an accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect." This definition was supported by Biggs,[22] chief judge of the third judicial circuit of the United States, in his recent book *The Guilty Mind.*

To provide proper safeguards, the Group for the Advancement of Psychiatry[23] recommended that a person who by virtue of mental disease has committed an offense should be subjected to a considerable period of observation and review by the court before he is again permitted the freedom and privileges of society.

I cannot close without saying a word about the so-called "battles of experts." The appointment of experts by the courts from a panel recommended by the state department of mental hygiene would help in solving this problem. In such a system the prosecution, the defense, and the court could select a commission of three experts who would then examine the offender and make their report available to all parties concerned. If these parties then desired to introduce their own special experts, they would have the privilege of doing so, but the jury would be permitted to know that the original commission of three experts had been appointed by the court. A similar method has operated in Massachusetts since 1923 under the Briggs law. A voluntary system of this sort exists in Cincinnati, where the members of the psychiatric society refuse to testify for either side and insist that they will serve only on appointment as "friends of the court."

In my opinion there is a need for continuing committees of scientists and lawyers to engage in realistic appraisal of existing codes in an endeavor to revise them in accordance with the advances of science. To reject such tests as paternity tests on the ground that they are "not conclusive because not so declared by code," deserves the comment made by Judge McComb,[2] "to reject the new and certain for the old and uncertain does not tend to promote improvement in the administration of justice."

There is need for a greater number of both undergraduate and graduate courses in the relations of law and medicine in both law and medical schools. There is perhaps a need for more joint meetings of medical societies and bar associations so that the professions may learn from each other. From these efforts there may result an understanding which may make the following comment by Biggs[22] unnecessary:

"I am greatly troubled that so many competent lawyers have such small interest in psychiatry and fail to understand its relation to their own profession. What I have said about lawyers is true as to judges. Many judges are inclined to regard psychiatry as some form of disreputable black art. They are very, very skeptical concerning the results the psychiatrist can reach from the examinations he has made. I do not mean to imply for a moment that the judgment of the psychiatrist is to be substituted for that of the judge or for that of the jury. What I mean is that the intelligent application of the principles of psychiatry to the problem of the mentally deficient criminal defendant can be of very substantial use in enlightening both court and jury as to criminal responsibility. The law schools of the country and the lawyers and we judges have spent too little time in the adopting of techniques for improving the human race as distinguished from punishing it."

2944 Fresno Street, Fresno 21 (Zeifert).

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Carcinoma of the Thyroid Gland

A Review of 106 Cases

GEORGE L. O'HARA, *M.D.*, Van Nuys,
IAN MACDONALD, *M.D.*, and
ROBERT A. WEBER, *M.D.*, Los Angeles

• **In a review of 106 cases of carcinoma of the thyroid gland, it was noted that a solitary thyroid nodule is the most outstanding single physical sign in this disease. It should be investigated by biopsy of a specimen removed at operation. Patients and physicians were sometimes guilty of delay in this regard.**

Papillary carcinoma involved multiple foci within the gland in at least half of the cases and there was a high incidence of regional lymph node metastasis associated with this type.

Doubt was cast on conclusions by other investigators that carcinoma of the thyroid rarely is lethal in patients less than 40 years of age.

CARCINOMA OF THE THYROID GLAND has attracted the attention of the medical profession more and more in recent years. The disease has been recognized pathologically as a carcinoma that develops as other malignant neoplasms do and causes death if uncontrolled. Many clinicians, however, are reluctant to accept this fact. They are lulled into a sense of security by the fact that course of the disease may be protracted over a period of many years. Recent long term follow-up studies are eliminating this misconception. Because biopsy of the thyroid gland is more than a minor operation, indications for this procedure need clarification and acceptance. In addition, opinions as to methods of treatment of the disease are far from unanimous.

This presentation will review 106 unselected cases in which the patients were treated at the Los Angeles County General Hospital, at Harbor General Hospital and in the private practice of one of the authors. Ninety-three of the patients were treated primarily, while 13 had had previous treatment. The purpose of the study is to shed light on a few characteristics of the disease and to suggest a rationale of treatment for papillary carcinoma.

INCIDENCE BY AGE AND SEX

Chart 1 shows the age of the patients. Unlike most cancers, which affect primarily the older age groups, cancer of the thyroid has a biphasic curve with peaks in the fourth and seventh decades. It affects females preponderantly, the ratio of females to males in this particular study being more than 4:1 (87 females, 19 males). In the older age groups, however (over 60 years), the ratio was 2.4:1 (24 women, 10 men). These findings agree with those of Sloan,[8] who also pointed out that this ratio is low in childhood too. In the present series so few of the patients were less than 20 years of age that no conclusions could be drawn in this regard.

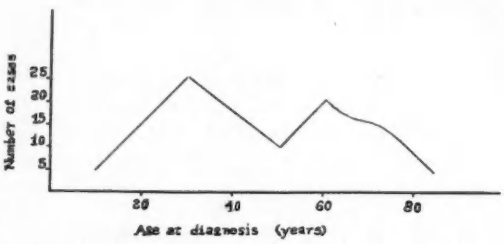

Chart 1.—Age of patients at time of diagnosis of carcinoma of the thyroid gland (106 cases).

PATHOLOGICAL CLASSIFICATION

Table 1 shows the incidence of various pathologic types of carcinoma in this series. For clinical purposes a relatively simple classification is used without regard to niceties of pathologic detail. In all cases in which there were elements both of follicular and papillary types histologically, the classification assigned was *papillary*, for it is the authors' convic-

TABLE 1.—*Incidence of Pathologic Types of Carcinoma in Present Series Compared with Incidence Reported by Other Investigators*

	Incidence (Per Cent) in Various Series			
	Current Series 106 Cases	Cope 190 Cases	Sloan 282 Cases	Frazell & Foote 301 Cases
Papillary	61	47	50	46
Follicular	23	24	25	7
Hurthle cell	5	0.5	5	9
Undifferentiated	6	24	20	19
Lymphoblastoma	4	0.5	....	....
Other	....	4	....	19

Presented before the Section on General Surgery at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

TABLE 2.—*Duration of Symptoms Before Diagnosis*

	Number of Cases					
	All	Papillary	Follicular	Hurthle Cell	Undifferentiated	Lymphoblastoma
Less than 6 months	23	12	5	1	3	2
6 to 12 months	10	7	2	....	....	1
1 to 3 years	27	29	5	....	2	1
3 to 5 years	6	3	1	1	1	....
5 years or more	30	16	9	3	2	....
	96	57	22	5	8	4

Unspecified: Papillary, 8; Follicular, 2.

tion that these tumors behave as papillary carcinomas. Giant cell types and small cell types were included with the undifferentiated tumors. Lymphoblastoma was included because there were four cases which clinically appeared to be primary thyroid cancer, but subsequently proved to be lymphoblastoma. The incidence of the various types in this series was compared with that in three other series in Boston and New York. In order to obtain some uniformity of classification for purposes of comparison, mixed types were considered as papillary, giant cell and small cell types as undifferentiated. There was a considerably higher incidence of the relatively benign papillary type in the present series than was reported in the eastern series. There were also considerably fewer of the malignant and undifferentiated type.

SYMPTOMS

Most patients complained of a mass in the thyroid area. About one third also complained of pressure. Only one patient had pressure symptoms without noticeable mass. Two were asymptomatic, the mass being noted on routine physical examination. Two patients sought aid because of symptoms suggesting toxicity but only one of these had thyrotoxicosis. Symptoms, however, directed attention to the gland and the necessity for exact diagnosis.

Of more interest, perhaps, than the actual symptoms is the delay from onset of symptoms to diagnosis (Table 2). It is to be noted that many patients had symptoms for more than five years before the diagnosis was made. Remarkably, two such patients had undifferentiated carcinoma. Some of the patients had sought aid from physicians during the interval before the diagnosis was made.

PHYSICAL FINDINGS

The solitary nodule was the striking physical finding among patients with thyroid carcinoma (Table 3). It was noted in approximately half of the patients. This accords with the well known relation of a solitary nodule to carcinoma. The finding of a multinodular or diffusely enlarged gland does not exclude cancer. In addition, if a nodular thyroid

TABLE 3.—*Observations on Physical Examination*

	No. of Cases	
Solitary nodule	54	—with nodes 12
Multiple nodules	19	—with nodes 1
Diffuse enlargement	24	—with nodes 1
Mass replacing gland	6	—with nodes 0
Palpable cervical nodes	19	
Neck normal on physical examination	4	
Dominant nodule in multinodular gland	3	
Dominant nodule in diffusely enlarged gland	6	
Palpable nodes only	8*	

*Two had previous treatment.

TABLE 4.—*Primary Treatment*

Total thyroidectomy	25	with neck dissection	13
Total lobectomy	32	with neck dissection	6
Subtotal thyroidectomy	20		
Subtotal lobectomy (local excision of nodule)	12		
Biopsy and radiation	3		
Biopsy only	3		

gland contains a dominant solitary nodule, it should be treated in a manner analogous to an undiagnosed lump in the breast—by open biopsy. In only one in five cases in the present series were there palpable cervical nodes. In six such cases the lesion was papillary carcinoma whose symptoms were first manifest by metastasis to cervical lymph nodes—the old "lateral aberrant thyroid." In cases in which the neck was normal on physical examination, symptoms developed as a result of metastatic lesions elsewhere in the body, investigation of the thyroid having been eventually brought about through study of these distant growths.

PRIMARY TREATMENT

Owing to the multiplicity of the sources of the patients and to changing concepts as to proper management, there was no uniformity of methods of treatment. Table 4 shows the initial therapy that was given to these patients. Total thyroidectomy was done in only 21 instances. A subtotal lobectomy as listed in the table implies simply a local excision of the nodule. Neck dissection either limited or radical was combined with total thyroidectomy in 12 instances, and with lobectomy in six.

TABLE 5.—*Foci in Thyroid*

	Single	Multiple
Total thyroidectomy (21):		
Papillary	11	5
Follicular	0	2
Other	3	0
Subtotal thyroidectomy (47):		
Papillary	20	10
Follicular	10	0
Other	7	0

SINGLE OR MULTIPLE FOCI IN THYROID

Because there is considerable confusion as to the amount of thyroid gland which should be removed with a carcinoma, a review of the number of foci of tumor within the gland was carried out (Table 5). All cases of lymphoblastoma and 11 cases from one source where the data on this point were not available, were excluded. This study was based on routine multiple block sections and not on a large number of serial sections. All cases in which distinct multiple foci were not noted were considered as having a single focus. Even with these rigid restrictions it was immediately apparent that in about half of the cases of papillary carcinoma there were multiple foci within the gland. Russell,[6] doing whole gland serial sections to discover multiple foci, found such foci in 11 of 12 papillary carcinomas. He set forth the concept of the thyroid gland as "a large lymphatic lake with the capsule being the first limiting barrier to tumor cells. These findings strongly suggest that total thyroidectomy should be employed in the treatment of thyroid carcinoma, especially of the papillary type.

ASSOCIATED PATHOLOGIC CHANGES

Associated pathologic changes noted in the thyroid gland in cases in which the gland was removed because of carcinoma are listed in Table 6. The data were derived, of course, from cases in which enough of the gland was removed to determine whether such changes were present. The incidence of associated diseases in the glands containing carcinoma was no greater than that in the thyroid gland in the general population. These data are in agreement with those of Sloan.[8] The four cases in which the lesion seemed to arise in an adenoma, may well have been cases of carcinoma arising de nova and subsequently betraying their true nature by developing histologic criteria of malignant growth. The evidence at hand is not convincing that carcinoma is more likely to develop in a patient with nontoxic nodular goiter or any other minor thyroid abnormality than it is in the general population. In this series none of the males had associated pathologic changes in the gland. This strengthens the common opinion that a solitary nodule of the thyroid in a male is almost invariably carcinoma. These facts support the thesis that carcinoma of the thyroid arises directly from the gland itself and not from some preexisting disease within the gland.

TABLE 6.—*Associated Pathologic Changes in Thyroid Gland**

None	51
Nontoxic nodular goiter	18
Adenoma	6
Thyroiditis	4
Hypertrophy with involution	1

*No male had associated thyroid disease.

TABLE 7.—*Data on Clinical Diagnosis of Cervical Node Involvement Compared with Actual Occurrence of Involvement (Excluding Cases of Lymphoblastoma)*

	No. of Cases
Cases in which nodes were removed	28
Nodes clinically palpable	19
Nodes pathologically positive	26
Cases of papillary carcinoma	20
Nodes clinically palpable	14
Nodes pathologically positive	20

INVOLVEMENT OF NODES

Nodes were removed for pathologic study in 28 of the cases in the present series, exclusive of cases of lymphoblastoma (Table 7). In only 19 of these 28 cases had nodes been palpable clinically, although in 26 cases nodes were found to be involved. With regard to cases of papillary carcinoma only, nodes were removed in 20 cases and all the nodes contained metastastic growth, although in only 14 cases had palpable nodes been noted. Thus, in only one case of nonpapillary carcinoma was a node that was not palpable found to be histologically "positive." This accords with data set forth by Macdonald and Kotin[4] in 1953, namely, that 43 per cent of papillary carcinomas were found to have spread to cervical lymph nodes whether or not such nodes were palpable clinically. It is in agreement also with observations by Frazell and Foote[3] who found 61 per cent of nodes positive in 67 patients without palpable nodes.

METASTASIS

Table 8 shows the nature of spread of the various types of carcinomas as observed in the present series. Of the papillary type, about one third disseminated to lymph nodes, while only about one in ten infiltrated beyond the gland locally or spread to distant sites. In the case of follicular carcinomas, about one in four spread to nodes and about the same proportion to distant sites. Hurthle cell carcinomas tended to remain confined to the thyroid gland or to the local area in the neck. Not many of the undif-

TABLE 8.—*Data on Metastasis from Carcinoma of the Thyroid Gland*

	None	Local Infiltration	Nodes	Bones	Chest	Other
Papillary	34	7	20	2	6	2
Follicular	15	1	6	5	2	1
Hurthle	5	1	....	....	....	....
Undifferentiated	4	2	2	....	1	1*

*Site unspecified.

ferentiated carcinomas extended to distant sites. This is probably owing to the fact that the patient dies so early of rapid local growth of the primary lesion that there is no time for distant extension.

FOLLOW-UP

Seventy-four patients had been observed for more than one year at the time of this report. The study was not sufficiently protracted to permit drawing conclusions as to survival rate. However, it is planned to carry out a long term follow-up program with special emphasis on carcinoma of the papillary type. Cope[5] and co-workers reported a five-year survival of 43 per cent in papillary carcinoma, 35 per cent in follicular and only 11 per cent in undifferentiated. Shallow, Wagner and Colcher[7] had a five-year survival of 40 per cent among 85 patients with carcinoma of the thyroid gland who were observed for five years or more, but these investigators did not say how many cases in the series were lost to follow-up. In the present series were two patients with carcinoma of undifferentiated type who were alive more than five years after the onset of disease. These were the same two patients who had symptoms for more than two years before the diagnosis was made. Of the six patients alive with disease at the time of report, three had papillary carcinoma with recurrent neoplasm that probably would soon cause death. Apparently then, any thyroid carcinoma may eventually cause the death of the host by local growth or metastasis.

Fourteen patients died of the disease, six of them of distant metastatic lesions—in the lungs in most cases. Nine patients died of unrelated causes; four of them had thyroid carcinoma present at the time of death.

Crile[1] stated that carcinoma of the thyroid gland is rarely lethal under the age of 40 years, no matter what the histologic structure. In a study in which the period of follow-up was from three to fifteen years, he noted a mortality rate of 5 per cent under age 39, 55 per cent between ages 40 and 60, and 85 per cent over 60. Cope[5] and co-workers expressed the belief that death from thyroid cancer is extremely rare under age 39. In the present series, despite the limited period of follow-up, eight of the 23 patients who died were under 60 years of age, and in five of these eight cases death was due directly to thyroid carcinoma. One patient died of metastatic lesions at age 39. These data seem to justify skepticism of the conclusions of Crile and Cope in this regard.

14540 Hamlin Street, Van Nuys (O'Hara).

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Cancer of the Thyroid Gland

Its Occurrence Among Residents of San Francisco and Alameda Counties

PIERO MUSTACCHI, *M.D.*, Bethesda, Maryland

• **The incidence of cancer of the thyroid gland in men was about the same in Alameda and San Francisco counties as in the country at large, but the greater incidence of the disease in women than in men was more pronounced in Alameda and San Francisco counties than elsewhere in the nation.**

IN A PREVIOUS STUDY on the occurrence of cancer of the thyroid gland in the United States,[2] it was concluded that there are regional variations in the incidence of this neoplasm. The greater incidence of the disease in women than in men was most pronounced among those living in the West. The present report deals with the occurrence of cancer of the thyroid in individual metropolitan areas that participated in the survey of morbidity from cancer in the United States which was conducted by the National Cancer Institute in 1947-1948. The survey was conducted in areas selected so that the proportionate distribution of their population among the three regions—North, South and West—was the same as that of all cities of 100,000 or more population. The surveyed population amounted to 14.6 million, of whom 12.5 million were white. This communication presents in detail the data for San Francisco and Alameda counties, and for comparison, the incidence rates for other cities.

METHOD

The survey method was designed to obtain information on all or nearly all patients with cancer treated in hospitals, in clinics and in physicians' offices during a 12-month period ending in 1947 or 1948. Senior medical students were employed for abstracting hospital and clinical records. A questionnaire was mailed to every physician in the area, and personal visits were made to physicians not responding. In addition, as a partial check on the completeness of reporting, the records of local vital statistics offices were searched for information concerning deaths from cancer. It is believed that this method yielded information on practically every case of diagnosed cancer. This communication concerns the thyroid cancers diagnosed in the white resident population.

HISTOLOGIC CONFIRMATION OF CANCER

The desirability of obtaining a microscopic diagnosis* in each reported instance of cancer is beyond question. However, cases diagnosed solely on clinical grounds cannot be disregarded lest too much attention be given to the epidemiology of tissue blocks rather than to the occurrence of cancer cases. Reasonable credence can therefore be lent to trends established on the basis of analysis of all the reported neoplasms, especially if they parallel the findings of a study limited to the histologically confirmed ones.

In this material, four out of five cases of thyroid cancer were histologically "confirmed." Table 1 summarizes for each city and each sex the number of cases reported, the number for which a histologic diagnosis was available, and the age-adjusted rates based on these two sets of data. Table 2, although based on exceedingly small numbers, is nevertheless presented because of its potential usefulness in comparing eventual results of analogous investigations.

RESULTS

Table 1 shows that there is little, if any, significant variation in the incidence rates for thyroid cancer reported among the male residents of these metropolitan areas. However, because of the generally low incidence of this kind of cancer in males, one year's experience is insufficient to demonstrate beyond reasonable doubt that there is no regional variations among men. All that can be said is that these data provide no evidence suggesting greater incidence in men of one geographic region than in those of another. On the other hand, the number of cases recorded among females in that one year period is large enough to provide for more reliable conclusions. It can be seen that the incidence varied considerably in the 11 areas surveyed—from a low

From the Biometry and Epidemiology Branch, National Cancer Institute, National Institute of Health, Public Health Service, U. S. Department of Health, Education and Welfare, Bethesda, Maryland.

Received for publication July 23, 1956.

*A "validated" microscopic diagnosis would be still more useful, since the histologic criteria for "papillary adenocarcinoma" of the thyroid gland are not precise.—Editor.

TABLE 1.—*Number of Newly Reported Cases of Cancer of the Thyroid and Incidence Rates per 100,000 White Population of Eleven Selected Areas of the United States, 1947-1948*

	Males				Females			
	All Cases		Microscopically Confirmed		All Cases		Microscopically Confirmed	
	Number of Cases	Age-adjusted Incidence Rate*	Number of Cases	Age-adjusted Incidence Rate*	Number of Cases	Age-adjusted Incidence Rate*	Number of Cases	Age-adjusted Incidence Rate*
San Francisco	6	1.6	3	0.8	28	7.2	24	6.3
Alameda	6	1.9	6	1.9	27	7.8	24	6.7
Denver	3	1.3	2	0.9	9	3.4	6	2.3
Chicago	17	0.8	12	0.6	43	2.0	32	1.5
Detroit	14	1.2	11	1.0	25	2.7	20	2.1
Pittsburgh	9	1.3	6	0.9	22	3.0	18	2.5
Philadelphia	18	2.0	15	1.7	52	5.3	43	4.4
Atlanta	1	0.5	1	0.5	6	2.1	6	2.1
New Orleans	0	—	0	—	7	3.2	2	0.9
Dallas	0	—	0	—	6	2.6	6	2.6
Birmingham	0	—	0	—	7	4.2	6	3.6

*Adjusted to the 1950 United States population.

of 2 cases per 100,000 population in Chicago to 7.8 per 100,000 in Alameda County. It is further noted that while the agreement is not exact, there is also a general correlation between all cases recorded and those which were histologically confirmed. Among the surveyed cities, the highest rates were recorded in Alameda and San Francisco counties, and the next highest rate—5.3 in Philadelphia—was significantly lower than either.

It could be argued that there is more "thyroid consciousness" in an area where a keen interest in this gland has for a long time been stimulated by the fact that a number of nationally prominent investigators work there. However, the occurrence of thyroid cancer among the male residents of San Francisco and Alameda is not out of line with that in the rest of the surveyed areas—and it seems unlikely that the physicians in the area would have their increased awareness limited to one sex.

It would be interesting and informative to see whether additional studies based on all cases of thyroid cancer recorded in these communities, for a longer period, confirmed the points derived from this study of a single year's experience.* With regard to San Francisco, Alexander[1] found that an annual average of 26 histologically confirmed cancers of the thyroid had been newly diagnosed during the four-year period 1950-1953.* This accords with the 27 histologically confirmed cases of thyroid cancer recorded in San Francisco for both sexes during the 12 months of the 1947 survey. However, an exact comparison between Alexander's data and the data here supplied cannot be made, since Alexander did not provide the necessary details regarding the age and sex of patients.

*The reliability of the histopathological diagnoses of "papillary carcinoma" in both series of cases might be tested by submitting random samples of the slides to a committee of pathologists expert in this difficult field.—Editor.

TABLE 2.—*Number of Newly Reported Cases of Thyroid Cancer, White Population of San Francisco and Alameda Counties, 1947*

	San Francisco		Alameda	
	Males	Females	Males	Females
All ages	6	28	6	27
0 to 14	0	1	0	0
15 to 24	1	1	2	2
25 to 34	0	6	1	4
35 to 44	0	12*	1	7
45 to 56	0	4	1	1*
55 to 64	2*	0	0	1
65 to 74	1	3†	1	5*
75 and over	1*	1*	0	1
Unknown	1*	0	0	6*

*Includes one case not microscopically confirmed.
†Includes two cases not microscopically confirmed.

National Cancer Institute, Bethesda, Maryland (Mustacchi).

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Control of Diarrheal Diseases in California State Hospitals for Retarded Children

THOMAS L. NELSON, *M.D.*, Eldridge, and
ROSEMARY BRUNETTI, *M.D., M.P.H.*, Sacramento

• **The three California state hospitals for mentally retarded persons have been having a severe problem with amebic and bacillary dysentery and with other infectious diseases of the gastrointestinal tract. At Sonoma, the oldest of these hospitals, this problem is known to have existed for many years. Improved medical and nursing staffing and the use of antibiotics and other effective drugs developed in recent years have greatly lowered morbidity and mortality rates in these institutions. However, in themselves these measures have not been effective in lowering the incidence of infection.**

Studies have demonstrated that mass treatment of cottage groups known to have a high incidence of amebic infection has resulted in control of this disease where such mass treatment was followed by adequate laboratory follow-up, with isolation and retreatment of treatment failures. Where mass treatment of such groups has been carried out without such laboratory follow-up, there was a rapid return to the previous high incidence of infection.

Statistics show that these diseases are a serious threat to employees working in these institutions. Increasing attention is being paid to the potential threat to the surrounding communities and the state as a whole from the focus of infection present in these hospitals.

THREE OF THE HOSPITALS under the supervision of the California State Department of Mental Hygiene —Sonoma State Hospital near Sonoma, Pacific State Hospital near Pomona and Porterville State Hospital near Porterville—are solely for the care of mentally retarded patients. Half of the population in these hospitals is under 18 years of age. Most of the patients are so retarded as to be unable to learn even the rudiments of personal hygiene, and many are incontinent of feces. A further complicating factor in this lack of personal hygiene is overcrowding of patients in cottages and in general buildings. Furthermore, since budget limitations permit no more than minimal attendant and nursing help, the help of patients must be used in nursing care and in the handling of food, in spite of their inability to learn the basic elements of sanitation. This combination of circumstances provides an epidemiologically deplorable environment for stool-to-mouth spread of infections.

In the past five years there have been major outbreaks of amebiasis, shigellosis, salmonellosis, infectious hepatitis and food poisoning in these three hospitals. Dwarf tapeworm infestation and trichuriasis are currently endemic in one or more of the hospitals, and amebiasis, shigellosis and giardiasis are endemic or epidemic in all of them.

Six hundred and eighty cases of amebiasis—an infection incidence of a little more than 10 per cent of the combined average population of the three hospitals for that year—was reported by the three hospitals for the year 1954. This number of cases was greater than from the remainder of the state. In the same year, 105 cases of shigellosis and 107 cases of giardiasis were reported.[2] Nine per cent of all the cases of shigellosis reported in California during this same year were reported from the three hospitals—a very significant figure when it is realized that it comes from a group of less than 7,000 of a total state population for that year of 12 million.

Further evidence of the extent of the problem has been shown by various surveys. At Sonoma in 1953, of 100 children in an infirmary for chronic bedridden patients, 38 had amebiasis. The diagnosis was made on the basis of three wet mount stool examinations from each patient by a competent parasitologist,[1] with confirmation of positive stool specimens on iron hematoxylin stained slides. Nine of the 38 children had frank dysentery with diarrhea, discharge of mucus and hyperactive peristalsis, and had either blood in the stools or the motile form of *Endameba histolytica,* or both. Eight other children at the time of diagnosis had diarrhea, with hyperactive peristalsis and appeared ill but did not pass gross blood or trophozoites of *E. histolytica* in stools. In seven others there was evidence of chronic amebiasis with associated malnutrition and recurrent bouts of diarrhea over several months preceding the survey. The remaining 14 children were asymptomatic and were classified as cyst passers.

In the same year at Sonoma in a cottage of 115 preadolescent and adolescent boys, a 53 per cent

Superintendent and Medical Director, Sonoma State Hospital, and Assistant Clinical Professor of Pediatrics, University of California School of Medicine, San Francisco (Nelson).

Assistant Health Officer, Sacramento County Department of Public Health, and former Epidemiologist, Bureau of Acute Contagious Diseases, State Department of Public Health (Brunetti).

Presented before the Sections on Public Health, Pediatrics and General Practice at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

infection rate with *E. histolytica* was shown to exist, following examination of at least three stool specimens.[8] Wet films, concentration of those which were negative on wet mount, and iron-hematoxylin staining methods were used in this study in order to assure the best sensitivity and accuracy of diagnosis.

A laboratory and epidemiological survey was conducted at Pacific State Hospital in December 1953 and January 1954 by the State Department of Public Health and the Los Angeles County Health Department.[3] Two cottages which housed a total of 245 young children were surveyed. A single stool specimen from each, as well as a culture by rectal swab, revealed the prevalence rate for *Shigella sonnei* to be 3.7 per cent and *E. histolytica* 40.5 per cent. Undoubtedly, if additional parasitological and cultural examinations had been done a higher incidence would have been reported.

In February and March of 1956, 43 per cent of the patients who worked as food handlers in the central kitchen at Sonoma had amebae in fecal specimens. Eight out of the 12 patients who prepared vegetables were found to be infected.

HISTORY

Sonoma State Hospital, the first California state institution for the mentally retarded, was built on its present site in 1891. Pacific State Hospital was founded in 1927 and Porterville State Hospital in 1953. It is not known how long the specific dysenteries have been a problem at Sonoma, but old hospital records show that in the late 1800s there were many diagnoses of "acute intestinal intoxication," which may have been cases of shigellosis.

In 1937 a stool specimen from a patient with particularly severe dysentery was sent from Sonoma State Hospital to the State Bacteriology Laboratory and was proved positive for *Shigella flexneri.* This was the first laboratory proved case of a specific dysentery in any of these hospitals. During 1937-1938, the State Department of Public Health conducted periodic surveys at Sonoma. Between July 1937 and December 1938, there were 262 cases of bacillary dysentery at this hospital, 17 of them fatal.[4] One of the ensuing recommendations made by the state health department was that a bacteriologist be added to the permanent staff at Sonoma. In 1941, a well trained bacteriologist and parasitologist was employed and soon afterward *E. histolytica* as well as *Shigella flexneri* were reported[7] at the hospital. Proved amebiasis at Sonoma can, therefore, be dated back to 1941.

Porterville State Hospital admitted its first patients in 1953 as transfers from other state hospitals. Morbidity rates from amebic and bacillary dysentery have been high there almost from the day it opened.[6]

CONTROLLED EXPERIMENTS

Experiment 1: At Sonoma in the five-year period 1950-1954 inclusive, an attempt was made to strictly isolate and treat all patients with symptomatic amebiasis and shigellosis, and to observe treated patients for a six-month period. Nursing service personnel were instructed to submit specimens to the laboratory from any patient who had diarrhea or blood in the stool. Staff physicians were alerted to submit fecal specimens from any patient whom they suspected of having chronic or acute amebiasis or shigellosis. Fresh specimens were examined in saline solution on iodine plus eosin stained wet mounts, and also were cultured on Salmonella-Shigella media. Suspicious colonies on this media were identified by sugar reactions and agglutination with group-specific sera.

Those patients who were found to have amebiasis or shigellosis were admitted to the isolation ward of the hospital or were isolated in their own cottages when hospital beds were unavailable. Over the five-year period the treatment regimens used were those which were considered most adequate at the time. The sulfonamide group of drugs, tetracyclines and polymyxin by mouth were used for shigellosis. Arsenicals, diodoquin and various antibiotics—singly or in combination—were used for amebiasis. The efficacy of some of these treatment regimens has been reported elsewhere.[1,5,8,9] Patients remained in isolation for the duration of the treatment period and until two post-treatment stool examinations were negative for organisms. Following release from isolation, stool specimens were examined weekly for six weeks and thereafter monthly for six months. On recurrence or reinfection the treatment and follow-up schedule was repeated.

The results of this experiment indicated a steady decline in the incidence of shigellosis (220 cases in 1950 to 37 cases in 1954). However, in spite of these measures, there was an increasing rate of amebiasis (70 cases in 1950 to 385 in 1954). Uncontrolled variables during this period were: Increased nursing staff and improved laboratory services.

Experiment 2: At various times since 1950 epidemics of acute shigellosis or acute amebiasis have occurred in single cottages. Symptomatic cases appear suddenly, with 20 per cent or more of the persons in a cottage becoming ill. Several of these outbreaks were dealt with by mass treatment of all persons in the cottage, but laboratory follow-up studies to determine whether treatment failed in individual cases was not carried out. In all instances, good control of the symptomatic outbreak was obtained. The case rate fell to unusually low levels for a period of two to three months, but six months later was again at the usual level.

Experiment 3: In two episodes of acute outbreak

of amebic disease as described in Experiment 2, mass treatment was used and in addition there was laboratory follow-up to determine the cases in which infection continued. In one episode, ten specimens from each patient obtained at intervals in a three-month period following mass treatment were examined. Resistant cases were retreated with another drug. The cottage was essentially free of amebic infection during this three month period and for six months thereafter; then the case rate again rose.[1]

In another episode following mass treatment, three stool specimens a month were checked over a six-month period. In this instance the cottage was apparently cleared of amebic infection by the end of the six-month period, but nine months after the end of the six-month period of laboratory control, clinical cases of amebiasis again began to appear.[8]

HAZARD TO EMPLOYEES AND COMMUNITY

Continued morbidity among the patients represents only one of the epidemiologic aspects of these enteric infections. Questions as to the hazard to the employees and the possibility of transmission to and from the institution and the community have not as yet been thoroughly explored. From observations made during investigations by the State Department of Public Health, reports from the State Personnel Board on sick leave taken by personnel, and disabling injury reports from the Department of Industrial Relations it is inferred that the risk is not limited to the patients. Occasional cases of dysentery are known to have occurred among employees of the three state hospitals for the mentally retarded during the years 1950 to 1955. During the 12 months ended June 30, 1954, 95 of the 2,067 employees at Sonoma, Pacific and Porterville state hospitals received compensation for infections transmitted by fecal-oral route (7 cases of amebiasis and 88 cases of infectious hepatitis). Recently there was a sudden outbreak of amebiasis among employees at Sonoma, 27 cases during the first three months of 1956.

The threat from the foci of infection in these hospitals to the community outside of the hospital has not been confirmed by laboratory or epidemiologic studies. Some families have volunteered the information that diarrhea occurred among their members during or following a visit home by their mentally retarded child. Employees have also suspected that they have been the source of enteric illnesses noted in their families. Asymptomatic carriers discharged from the hospital to their own home, to a foster home or to a vocational placement could be potential sources of spread of these diseases.

Transmission of infection from the employee to the patient or from the community to the hospital is a possibility, although there is not very much factual data as to the severity of this threat.

To improve the general level of sanitation is the most basic control measure for diarrheal disease and, perhaps, the only one which will be effective. This will require increased and better trained staffs, particularly within the nursing services. To reach a level of staffing which would permit dispensing with the services of patients in food service areas and in the direct care of sick patients seems essential.

Mass treatment of the entire population of these institutions has been suggested as a relatively inexpensive way to control amebic and bacillary dysentery. On the basis of mass treatment experiments in single cottages, the authors believe that such a program would not succeed. Mass treatment, if followed by sufficient laboratory studies to discover cases in which treatment failed, seems to offer hope of controlling the present situation. If continuing laboratory and clinical surveillance was carefully maintained, it might be possible to eradicate dysentery from these hospitals.

Improved case finding, with individual treatment of carriers and of patients with clinical cases, would not be successful as a control means for amebiasis at this time, because of the present widespread distribution of infection.

So far, efforts to control the enteric infections in the state hospitals for mentally retarded persons have been centered on the impact of these diseases on the patient. This limited approach has pointed to the futility of attacking only part of a problem and attempting to resolve it with inadequate facilities and personnel. The interrelationship of the community, the employee and the patient in maintaining and disseminating these enteric infections must be defined. This requires a well planned coordinated study of the whole problem, conducted by a team of qualified personnel from the fields of medicine, microbiology and public health.

P. O. Box 218, Eldridge (Nelson).

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Parent Development

DAVID BELAIS FRIEDMAN, M.D., Los Angeles

• **Today's parents tend to be overwhelmed with advice from many sources. In his role as family counselor, the pediatrician must understand and consider the emotional development of parents in relation to their child's development; otherwise, his advice and counsel do not "take" and he becomes tired and frustrated and angry.**

Parents progress through definite stages of development: Stage 1: *Learning the cues*—the struggle of the parents to interpret the infant's needs. Stage 2: *Learning to accept growth and development*—the parent learning to accept some loss of control of the toddler. Stage 3: *Learning to separate*—the parent learning to allow the child to develop independently. Stage 4: *Learning to accept rejection, without deserting*—the struggle of the parents not to intrude and yet to be there when needed. Stage 5: *Learning to build a new life having been thoroughly discredited by one's teenager*—the parent learning to live independently while the teenager struggles to develop his own identity.

The pediatrician who is accepting, sensitive and a good listener and who keeps in mind that parents as well as children have capacities for growth and development, will be a potent factor in promoting good parent-child relationships and many times more effective in dealing with the child in health and disease.

PEDIATRICIANS have three primary tasks: To treat children when they are ill, to keep children physically and mentally healthy, and to promote healthy parent-child relationships.[1,3,6,7] The American Board of Pediatrics, recognizing that a practicing pediatrician can no longer be merely a specialist in the diseases of childhood, has for many years insisted that the essentials of child growth and development be emphasized in pediatric specialty training.

But children are not the only members of the family who grow. Mothers and fathers also progress through definite stages of development as parents. A pediatrician, often working more closely with the parents than with the child, must consider parental emotional development. Otherwise his efforts to help a child medically may be frustrated by his inability to work successfully with the mother and father.

Even if he recognizes the successive stages of development in relation to their child through which the adults must pass, the pediatrician may be unable to help for want of skill in counseling. The day has passed when a physician may hope to give advice and have it reverently obeyed by the majority of his patients. Parents are inundated with advice from innumerable sources, and many have become either bewildered or immune. Pediatric advice, although well-intentioned and sound, may bring about totally unexpected and undesirable results.

Skill in aiding parent development depends upon two factors, a knowledge of the stages of normal emotional growth through which the parents must progress, and an ability to encourage the parents' insight into their problems by expert listening and observation.[3,7] In the simplest terms, the pediatrician must learn to advise less and to listen more.

Normally, parents pass through at least four, and probably five stages of emotional growth and cognition. Each stage reflects the major problems in the child's development[1,6,7,8,9] with which the parent is grappling. The stages are not rigidly defined. One does not terminate when another begins, and the mother or father who has progressed to a later stage may still be working on problems held over from earlier periods. Early development lays the groundwork for the later phases when child and parent are more mature. Because the stages only have meaning if considered in relation to the child's development, parents go through the same stages with each child, although parental experience may modify the stages to some extent.

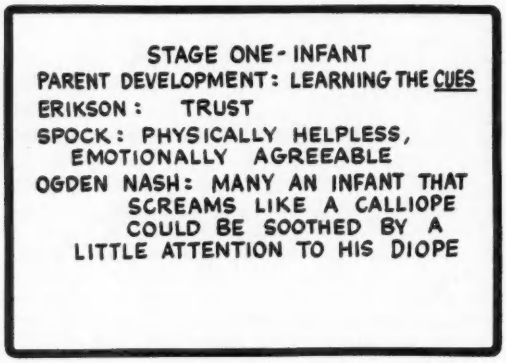
Presented before the Section on Pediatrics at the 85th Annual Meeting of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

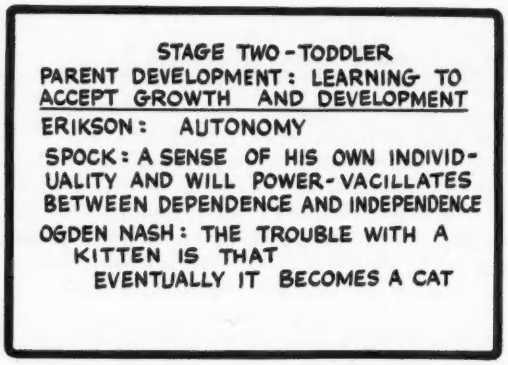
1. Learning the cues

Many an infant that screams like a calliope
Could be soothed by a little attention to his diope.
OGDEN NASH

During the earliest months of their baby's life, the parents' most bewildering problem is to find out what the baby is trying to tell them. The infant is completely dependent upon them for his relatively simple needs—food, fondling, physical care. Spock[9] commented that an infant is "physically helpless and emotionally agreeable." Throughout this phase, which Erikson[2] calls the period of "trust," he needs to establish confidence in his mother and in his environment. This trust will provide the foundation for his further development.

Despite earnest effort, parents often remain unable to interpret the individual cues by which the baby tries to express his needs.[10] Does he cry because he is hungry, tired, wet, or spoiled? They also have lingering doubts about the infant's physical


STAGE ONE - INFANT
PARENT DEVELOPMENT: LEARNING THE CUES
ERIKSON: TRUST
SPOCK: PHYSICALLY HELPLESS, EMOTIONALLY AGREEABLE
OGDEN NASH: MANY AN INFANT THAT SCREAMS LIKE A CALLIOPE COULD BE SOOTHED BY A LITTLE ATTENTION TO HIS DIOPE


STAGE TWO - TODDLER
PARENT DEVELOPMENT: LEARNING TO ACCEPT GROWTH AND DEVELOPMENT
ERIKSON: AUTONOMY
SPOCK: A SENSE OF HIS OWN INDIVIDUALITY AND WILL POWER - VACILLATES BETWEEN DEPENDENCE AND INDEPENDENCE
OGDEN NASH: THE TROUBLE WITH A KITTEN IS THAT EVENTUALLY IT BECOMES A CAT

status. The pediatrician may become frustrated or angry because the parents do not accept his reassurance or because they reject his advice regarding the technique of handling the child. If he keeps in mind, however, that the parents are in the stage of "learning the cues," he may see that the parents *cannot* carry out his suggestions because they have not yet mastered their first lesson. For example:

The mother of a six-month-old infant became extremely perturbed because the child screamed constantly. Two former pediatricians had suggested numerous techniques; she had tried to apply them, but the baby continued to cry.

The young woman was encouraged to talk about the problem as she saw it. She said: "My sister lives with us. She has a job and helps support us. She has always done everything better than I. When she holds the baby, he never cries; so I let her take care of him whenever I can." Jealousy of the sister was evident in her tone. When she had finished telling her story, she got up without waiting for the baby to be examined, expressed her thanks, and marched out of the office. A month later she returned. Laughingly, she explained that she had gone home, "told her sister off" and started taking care of the baby herself. The child had stopped crying except when hungry or uncomfortable.

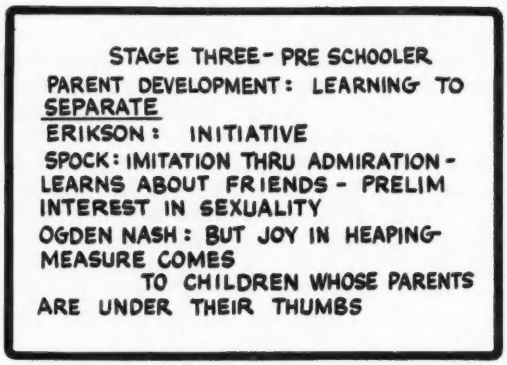
This mother had been blocked from "learning the cues" because she had carried over into her relationship with her child, her negative feelings regarding her sister. Insight into those feelings helped her to develop a good relationship with her baby and to meet his needs more adequately.

2. Learning to accept growth and development

The trouble with a kitten is that
Eventually it becomes a cat.

OGDEN NASH

The parents of the toddler can no longer exert omnipotent control over their offspring. Although he continues to need love and attention from them, the toddler has gained motility and begins to assert his


STAGE THREE - PRE SCHOOLER
PARENT DEVELOPMENT: LEARNING TO SEPARATE
ERIKSON: INITIATIVE
SPOCK: IMITATION THRU ADMIRATION - LEARNS ABOUT FRIENDS - PRELIM INTEREST IN SEXUALITY
OGDEN NASH: BUT JOY IN HEAPING MEASURE COMES TO CHILDREN WHOSE PARENTS ARE UNDER THEIR THUMBS

independence. Spock[9] spoke of "a sense of his own individuality and will power" and "vacillation between dependence and independence." Erikson[2] called this the period of "autonomy," since it represents the earliest development of self-reliance and self-control. Many parents who "just love babies" find it difficult or impossible to tolerate the toddler, who is "so cute, but—!"

Again, the pediatrician may find that to discuss the youngster's "feeding problem" and "bad sleep patterns" is futile as long as he concentrates solely upon the growing child's needs. His suggestions may be more fruitful if, before offering them, he considers that the parents are being called upon to enter a new phase of maturity. They must learn to accept the growth of their child, and they need help in adapting to the child at his new developmental level.

The mother of a two-year-old boy complained that he would not eat, that he got into everything, and that spanking did not help. She was reassured that all children go through this stage but she appeared unimpressed. A few weeks later she returned, pleading that the child be given a sedative. In response to a suggestion that she talk over her background and experiences, she said that she had been the older of two children and had always felt that

her young brother was the favored child. He had grown into a ne'er-do-well. She blamed her mother for having spoiled him.

Her projection of this disturbed relationship into her concern for her child's behavior and into her own inability to control it, was obvious. At the end of the visit she forgot to repeat her request for sedation. During subsequent visits, discussions of the "terrible two" were continued. The insight gained by both mother and pediatrician seemed to help her through this second stage of parent development.

3. Learning to separate

But joy in heaping measure comes
To children whose parents are under their thumbs.
OGDEN NASH

We are accustomed to speak of the separation anxiety of the two-year-old child as he approaches the outside world and friendships. The separation is equally difficult for the parents. Mothers and fathers are told that they must allow the child to assert himself, to explore, to show initiative; at the same time, they are told that they must set limits. Understandably, the parent asks: "How do I encourage initiative in my child? Must I let him wreck my home? If not, then what do you mean by 'sensible limits'?"

The preschool child has gained considerable motility. He develops positive feelings toward his parents and parent-substitutes. Spock[8] spoke of the child's "imitation through admiration." The preschool child has an active phantasy life, and fears are a common phenomenon; but he gains functional pleasure through mastery. Erikson[2] called this the stage of "initiative." The parent can cope with this new phase in the child's development only if he himself learns to accept separation.

The mother of a girl two and a half years of age complained that the child was demanding, high-strung and clinging, and that she had frequent tantrums. A pediatrician had told her that the youngster needed to have firm limits set for her; but the mother commented, "I never give in to her tantrums. Still she screams whenever she's thwarted, and she still clings to me all the time." The child appeared to be a happy, outgoing little girl.

In further conversation, the mother revealed early feelings of resentment toward the child, whom she had not wanted. Her sense of guilt regarding this resentment led her to overcompensate, so that she was unable either to set limits or to allow the child to separate from her and develop independently.

Here again, pediatric advice had fallen short. Yet, when the mother was given an opportunity to air her feelings in even a brief discussion, she seemed to gain considerable insight. The problem which had appeared to be the child's, she now saw as her own. Within a few weeks, she reported that the tantrums and clinging behavior had ceased. Improvement in the child had proved impossible until the mother had achieved the third stage in parent development, the ability to separate.

STAGE FOUR - SCHOOL AGER
PARENT DEVELOPMENT: LEARNING TO ACCEPT REJECTION---WITHOUT DESERTING
ERIKSON: INDUSTRY
SPOCK: FITTING INTO OUTSIDE GROUP. INDEPENDENCE OF PARENTS AND STANDARDS - DEVELOPING CONSCIENCE - NEED TO CONTROL AND MAKE MORAL
OGDEN NASH: CHILDREN AREN'T HAPPY WITH NOTHING TO IGNORE AND THAT'S WHAT PARENTS WERE CREATED FOR

4. Learning to accept rejection, without deserting

Children aren't happy with nothing to ignore
And that's what parents were created for.
OGDEN NASH

The parents of a child of school age must learn to accept what may seem to them to be total rejection by their offspring. On entering school, the boy or girl begins to manifest overt independence of his parents and their standards. Spock[9] described the "middle-aged child's" efforts to fit into the outside group and to move away from his parents. He mentioned the child's strict conscience, his attempts to control and to make moral his aggressive and sexual drives. Piaget[4] delineated the ways in which the social life of children gives rise to an inner discipline. Erikson[2] termed this the stage of "industry or work completion." At this stage the child learns to win recognition by producing things.

Parents react to the child's declaration of independence in a variety of ways. They may feel hurt, disappointed or angry even to the point of deserting the youngster. Despite his appearance of self-assertiveness, the middle-aged boy or girl still needs plenty of parental support; but the support must be given unobtrusively, without heckling, and it must be accompanied by respect for the child's feelings and his pride.

The mother of an eight-year-old girl stated that the child was withdrawn, unhappy, and hostile to her sister. Attempts to counsel this mother in the usual way, with reassurance, discussion of sibling rivalry and the emotional climate in the home, failed miserably. When, a few months later, the mother returned for a second visit with the same complaints. a new approach was tried. The pediatrician stopped advising and listened. As she talked, they both began to realize that she was deeply hurt by her daugh-

ter's seeming rejection. The woman, who had never had a good relationship with her own mother, prided herself on the wonderful relationship she had built up with this child. The previous reassurance that she had received regarding the emotional pattern of her daughter's age group took on new meaning for her. A few months later she reported that her daughter had "blossomed forth"; and although the child continued to be jealous of her sister, the mother now felt able to cope with her difficulty.

This mother was able to work out the fourth stage of parent development with little help, because she had mastered the earlier stages.

5. Learning to build a new life

> **O adolescence!*
> *I'd like to be present I must confess*
> *When thine own adolescents adolesce!*
> OGDEN NASH

There is probably a fifth stage of parent development. Facetiously, we may call it *learning to build a new life, having been thoroughly discredited by one's teenager.* Erikson[2] wrote of the adolescent's problem as one of "identity versus role diffusion"—the struggle of the teenager to find himself. The antics and actions of the teenager as he struggles to develop a sense of ego identity may seem irrational to adults, and may be hard on parents. Redl[5] described the adolescent as "peer oriented" but with a keen sense of fair play; Redl counseled parents to confine any necessary conflict to specific and major issues at hand; and he urged them to respect the feelings of the young people and to avoid constant criticism because it undermines morale and relationships.

This phase, like the preceding ones, calls for a new stage of parental development. The pediatrician has an opportunity to stress, in his discussion with the parents of adolescents, that the period has positive values for the adults as well as for their children. The mother and father now have the opportunity to rebuild their own lives, more or less independently of their children. To the extent that they achieve this positive outlook, they may become more tolerant of their offspring's behavior. The parent who has mastered the fifth stage of development does not intrude upon his son or daughter, but stays quietly in the background, ready to give support and help as they are needed.

STAGE FIVE - TEEN-AGER
PARENT DEVELOPMENT: LEARNING TO BUILD A NEW LIFE HAVING BEEN THOROUGHLY DISCREDITED BY ONE'S TEEN AGER
ERIKSON : IDENTITY
REDL: CONFLICT TO BE CONFINED TO SPECIFIC AND MAJOR ISSUES AT HAND - PEER ORIENTATION AND FAIR PLAY
OGDEN NASH: O ADOLESCENCE!--I'D LIKE TO BE PRESENT I MUST CONFESS WHEN THINE OWN ADOLESCENTS ADOLESCE!

4036 Wilshire Boulevard, Los Angeles 5 (Friedman).

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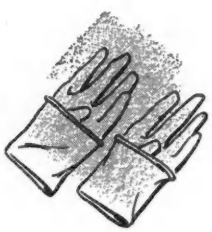


Intracardiac Operations

Use of a Mechanical Pump Oxygenator

LEON MORGENSTERN, *M.D.*, PETER F. SALISBURY, *M.D.*, MAURICE M. HYMAN, *M.D.*, J. MANNY SHORE, *M.D.*, and DAVID STATE, *M.D.*, Los Angeles

• **Cardiac operations under direct vision, employing extracorporeal circulation for heart-lung by-pass, are dependent for success on two major factors: (1) The use of an apparatus capable of maintaining optimal blood flow without toxifying the blood during its extracorporeal circuit, and (2) The ability of the surgeon to correctly assay the defect or defects during cardiotomy and correct them by suitable reparative techniques. Although perfection has by no means been achieved in either of these fields, much progress has been made to date in both. It remains for the repeated clinical application of the method in suitably selected cases to eventually make it a standardized operative procedure.**

IT HAS LONG been recognized that the performance of certain types of cardiac operations under direct vision would be dependent upon the functional exclusion of the heart and lungs by some mechanical apparatus. The pioneer work of Gibbon,[2] who in 1939 accomplished the first successful total by-pass of the heart and lungs in a cat, was followed by a wealth of experimental procedures of similar nature. The transfer, however, of laboratory knowledge and experience to clinical cases has been fraught with many difficulties, and progress has been slow. Nevertheless in the last two or three years the clinical application of extracorporeal circulation during the performance of surgical operations within the open heart has been brought to fruition. Successful clinical cases are being reported from an increasing number of centers.[1,3]

The varieties of "heart-lung" machines in use today have in common the following features. Venous blood is withdrawn from the patient by cannulation of the superior and inferior vena cavae, usually via the right auricle. The azygos vein is tied and the cavae are occluded during the perfusion, the venous blood being diverted to the oxygenating apparatus. The only blood then within the heart chambers is that reaching it through the coronary circulation via the coronary sinus or through the Thebesian system of veins. Following oxygenation the blood is pumped back into the patient's aorta, usually through a cannula in the left subclavian artery, thus maintaining cerebral, systemic and coronary perfusion with oxygenated blood. The heart is excluded from the circulation except for the perfusion of its own coronary system. Operation under direct vision on the relatively bloodless field is then feasible. Coronary sinus and Thebesian vein blood in the operative field is removed by suction.

Major variations in the machines pertain to methods of oxygenation and gas exchange, rates of flow of blood, methods of pumping and methods for preventing embolization of gases and/or particulate matter. Ancillary factors such as control of pH, temperature regulating, defoaming methods, and anticoagulation measures are other points of variation.[5]

Although superficially it would seem that the simpler the apparatus the better, experience has shown that pump oxygenators of the simpler types may fail to meet the demands in exigent cases. An apparatus used for the maintenance of extracorporeal circulation must be able to deliver adequate quantities of well oxygenated blood without rendering the blood toxic. It should have a relatively simple blood circuit, the mechanical parts of which function with a minimum of operational difficulty. Finally there should be a flexible controllability of physiologic variables, such as pH, venous and arterial pressure and temperature.

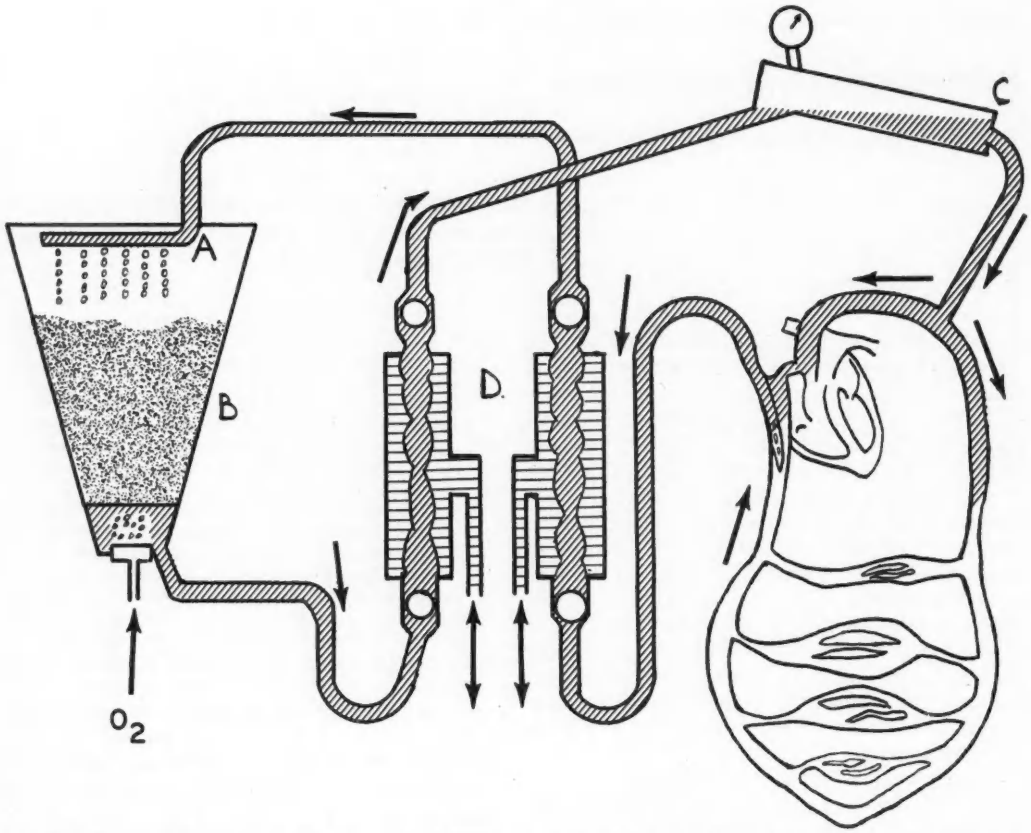
The machine used at the Institute for Medical Research, Cedars of Lebanon Hospital, was designed with these principles in mind.[4] It incorporates some of the features of previously described machines and adds some new ones. It is designed to deliver up to 4,500 cc. of arterialized blood per minute. This maximum flow rate has been successfully tested on a cow, and a flow rate of 2,500 cc. per minute has been used clinically.

Oxygenation is achieved by the Waud principle, in which the stream of venous blood from the patient is broken up into a shower of drops by a perforated

Presented before the Section on General Surgery at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

From the Department of Surgery and the Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles.

Supported in part by a grant from the Los Angeles County Heart Association and the Riverside Heart Association.



Schematic representation of mechanical pump oxygenator: (A) Perforated teflon spiral. (B) Oxygenating chamber. (C) Bubble trap. (D) Pumps.

teflon spiral (see A in diagram). The venous blood cascades upon a cushion of constantly renewed blood-oxygen foam in a cone-shaped container (B in diagram), where the gas exchanges take place. By this means 95 to 100 per cent oxygenation is readily achieved and the pH of the blood is effectively kept within the normal range.

To obviate air embolism, small bubbles are removed in a specially designed bubble trap (C in diagram). The pH is continuously monitored and necessary corrections can be made by variation in the gas mixture or changes in the perfusion rate. A constant registration of arterial pressure is maintained. Occasional periods of hypotension are corrected by increasing the perfusion rate or at times by the addition of pressor agents. The coronary sinus blood is not considered toxic and is continually returned to the venous line for recirculation. Temperature adjustment has not been considered necessary to date, but such adjustment could easily be made by placing warming tapes around the oxygenating cone.

The pumps corresponding to the ventricles (D in diagram) that are employed for movement of the blood column, consist of large bore silicone rubber tubes mounted within glass tubes. Alternate injection and withdrawal of water in the glass jacket alternately compresses and expands the inner rubber tube containing the blood column. Ball valve devices at either end control the directional flow. This kind of pump is considered less traumatic than many currently employed. Studies of the formed blood elements and plasma hemoglobin before and after perfusion have borne out this belief. In dogs the plasma hemoglobin increases at the rate of 1 mg. per 100 cc. per minute.

To insure maintenance of a constant blood volume in the extracorporeal circuit, as well as in the patient, an automatic nonelectronic blood level control is used. This serves to keep the amount of blood within the machine constant within 20 cc. Two thousand cubic centimeters of blood is required for priming the machine and the extracorporeal circuit.

The rate of perfusion may be easily altered by

either increasing the stroke volume or the frequency in the pumping mechanism.

Coagulability of the blood is controlled with the use of heparin in the dosage of 2.2 mg. per kilogram (2.5 pounds) of body weight. Only fresh heparinized blood is used for perfusion. The problems attendant upon obtaining an average of 5,000 cc. of freshly drawn compatible blood for every patient are considerable, but no simpler method seems feasible at present. Experimental use of citrated blood has proved it unsatisfactory for this purpose.

Once the machine is connected, operation is automatic and, in most instances, self adjusting, except for the required variations in perfusion rate, compensations for loss of blood, adjustment of pH and similar variables.

The oxygenating unit and blood circuit units are easily autoclaved.

In experiments with dogs, using the apparatus described, right ventriculotomy was done on 25 subjects with the creation and repair of interventricular septal defects, the heart routinely being kept open for 30 minutes. Twenty-three of the dogs survived.

The physiological principles and experimental effects of direct exposure of the aortic valve through aortotomy in the cross clamped aorta were studied also. This was done by two methods. In the first, "reverse" coronary perfusion was maintained through a cannula inserted in the coronary sinus, delivering oxygenated blood to the major portion of the myocardium. (With this method a portion of the right ventricle is not perfused due to the absence of coronary veins on the right.) By the second method, complete cardiac standstill was induced chemically, the aorta was cross-clamped, aortotomy was done without coronary perfusion for periods of up to 30 minutes.

In all cases (15 animals), effective spontaneous circulation was reestablished and some of the animals survived.

At Cedars of Lebanon Hospital the machine was used clinically in three cases. None of them terminated successfully, yet it was felt that the performance of the machine was entirely satisfactory in all three cases. The authors now recognize that in the first case, that of a 26-year-old patient with congenital pulmonic stenosis, the hemodynamic changes induced by the very correction of the defect were incompatible with life. The sudden increase in pulmonary arterial pressure resulted in a massive, hemorrhagic pulmonary edema, causing death. In the second and third cases (high interventricular septal defect), technical difficulties in the performance of the operation could not be overcome and structural abnormalities incompatible with life either remained or were created. Yet while the patients were connected with the machine, the circulation was adequately maintained. One patient survived 12 hours after total cardiopulmonary by-pass lasting 50 minutes with the heart being open for 32 minutes.

To date the most successful and dramatic clinical application of heart-lung machines have been in the field of congenital cardiac malformations. Interventricular septal defect in particular has been reported successfully dealt with by open cardiac operations while the patient was sustained by mechanical circulation. In the surgical field there remains for exploration the vast field of coronary artery operations, operations on the ascending aorta and aortic arch, and operations on the valves requiring direct vision, particularly operations to overcome valvular insufficiency. Even though many of the difficulties of the mechanical apparatus have now been surmounted, the technical aspects associated with the operation alone still remain a grave problem. The training ground is unfortunately a highly limited area within a diseased heart, which albeit relatively bloodless, entails technical problems of no small proportion. As experience grows with cardiac bypass and operation under direct vision, the problems will seem less formidable. With the proper selection of cases and the evolution of standard operative technique, it is not unforeseeable that direct vision operation on the open heart will become commonplace.

119 North San Vicente Boulevard, Beverly Hills (Morgenstern).

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Surgical Treatment for Poliomyelitis Paralysis

Principles of Reconstruction of the Upper Extremities

EDWIN R. SCHOTTSTAEDT, *M.D.*, LOREN J. LARSEN, *M.D.*, and FREDERIC C. BOST, *M.D.*, San Francisco

• **Successful surgical reconstruction of the upper extremities paralyzed by poliomyelitis depends largely on the careful analysis of the individual problem and replacement of critical motions of the upper extremity. These replacements or substitutions may be gained by muscle transposition, tendon transplantation, tenodesis, bone block, or arthrodesis.**

PARALYTIC POLIOMYELITIS can bring about a great variety of limitations of use of the upper extremities. The motor power still available in patients with upper extremity paralysis will determine the amount of reconstructive operation necessary for functional rehabilitation. Such rehabilitation is dependent upon the physical status of the patient in each case. In some cases only enough functional rehabilitation to permit a patient to carry out self-care can be effected, while in others an operative procedure can change the status of the patient from the standpoint of employability.

Depending upon the requirements of the patient and estimates of what can be done surgically, the aim is to regain certain categories of function for each patient. In the upper extremity, stability, range of motion and strength are needed. Many different operative techniques have to be used, the procedure depending upon the individual need, and the degree of improvement in status will vary. Limb mobility is the major consideration, although stability is important as related to holding objects or to limb placement. Stability is most important proximally, while motion becomes increasingly important distally, in this order: Scapulothoracic, scapulohumeral, elbow, wrist, finger joints. The available work area for any given patient will depend in some degree on the placement and use of his upper extremities to increase his utilization of this work area.

As a general rule the middle ranges of joint motion are of greatest functional value and should be sought for first. For purposes of discussion at this time, emphasis will be put upon certain procedures which have been found to be of proved worth in cases of paralytic poliomyelitis involving the upper extremity. The movements most essential to function are: Grasp (or some portion thereof), wrist flexion and extension, pronation and supination, elbow flexion and extension, humeral internal and external rotation, humeral flexion and extension and humeral abduction. Scapular stability and trunk balance are important in the full utilization of those motions. It must be kept in mind that every motion must have an opposing motion, although in some instances the opposing motion may be attained passively or by gravity.

Finger and thumb flexion and extension may be attained by the use of any active musculotendinous unit of the wrist, either flexor or extensor. This is probably related to the fact that wrist stability in various hand activities is supplied simultaneously both by wrist flexors and extensors. Furthermore, highly specialized muscles such as these which are under excellent cortical control will learn new patterns of motor activity with ease. Thumb and finger flexion frequently can be regained by transferring the extensor carpi radialis longus and brevis to the thumb and index finger and the extensor carpi ulnaris to the outer three fingers. If necessary the brachioradialis can be used to provide flexion to the third, fourth and fifth fingers. Its strength is excellent, but its range of motion is shorter than that of the wrist extensors.

It should be borne in mind that muscle fiber length is directly proportionate to the range of excursion in that muscle in its original anatomical site.[3] This is in direct relation to the range of motion it originally supplied to a joint. For that reason, wrist muscles should be transferred to the fingers so that they may work through a functionally useful range of midposition. Thus, when the brachioradialis is used the fingers should be pre-positioned into a more flexed position than when wrist motors are used. When transferring all wrist extensors, arthrodesis of the wrist is done, for finger extensors alone have not sufficient strength to provide stabilization

From the Shriners' Hospital for Crippled Children, San Francisco, and the Department of Orthopedic Surgery, University of California School of Medicine.

Presented before the Section on Orthopedics at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

for the wrist except for light activities. Even in such activities they gradually produce hyperextension of the metacarpophalangeal joints. Wrist flexors can be used to provide or reinforce finger flexion, although they are often absent when finger flexors are absent. Wrist flexors can also provide thumb and finger extension. The surgical program is often planned so that the flexor carpi radialis is placed in the thumb, and the flexor carpi ulnaris into the finger extensors. A variation of this may be to utilize the palmaris to provide extension of the index finger, and the flexor carpi ulnaris is then placed to the outer three extensors. The brachioradialis may be used as a finger extensor, although it is not as good as wrist motors in this location. Wrist fusion is unnecessary when moving the flexors except in very rare circumstances.

THUMB AND FINGERS

Patients who require a respirator generally have associated upper extremity weakness. The hands in particular are susceptible to contracture which may develop as the arms lie constantly in a fixed position. A large portion of the patient's time is spent with the fingers in a position of comfort. Proper splinting and exercise are difficult and painful and require the services of carefully trained and indoctrinated personnel. Even when the hands are exercised daily a full range of motion cannot always be secured. Motor power which may be regained is not always effective in mobilizing the metacarpophalangeal joints due to established contracture; and when this condition prevails, capsulectomy of the collateral ligaments of the metacarpophalangeal joints may be indicated.

Frequently poliomyelitis results in "clawing" of the fingers, caused by pronounced weakness or loss of the lumbricales and interossei. In such instances hand function can be improved materially by the use of Bunnell's technique of transplantation of flexor digitorum sublimus tendons into the dorsal interossei expansions.[1] This is an excellent procedure that has given very satisfying results in properly chosen cases. The surgeon must first assure himself that the flexor digitorum profundus has sufficient function to provide for finger closure without the aid of the flexor digitorum sublimus.

Thumb opposition is of great importance in hand function, and restoring it provides an appreciable functional gain. This gain will be acquired differently under varying circumstances. When there has been a loss of opponens only, opposition is best secured through transfer of the tendon of the flexor digitorum sublimus to the fourth finger around the flexor carpi ulnaris tendon, or through a tendon pulley just above the pisiform with attachment of the tendon to the distal dorsal ulnar aspect of the first metacarpal or proximal phalanx or to both. The line of force must be directed toward the pisiform. While many other procedures are useful, this particular one is most gratifying to the patient and to the physician. The fewer the muscles remaining about the thumb, the less effective will be the end result. In some instances other motor power must be supplied to the thumb by means of tendon transplants to effect useful return of opposition. If thumb involvement is severe, and available muscles for transfer are limited, arthrodesis of the first metacarpal to the greater multangular or by bony bridge to the second metacarpal is desirable. Occasionally, fusion of the first metacarpal to the multangular plus tendon transplantation to provide active opponens replacement will give results superior to those obtainable by fusion alone. This provides for opponens pre-position by joint stabilization and requires less motor power for active opposition. Thus, severe loss of other thumb muscles may be compensated for partially while allowing some active opponens motion. In general, procedures to replace opposition are successful functionally even though the function obtained may not equal normal opposition.

WRIST MOTION

Because of its functional significance, wrist motion should be retained if possible. It is surprising how much a patient can accomplish using varying degrees of wrist dorsiflexion alone without active finger flexion. In selected cases tenodesis of the flexor digitorum profundus to the radius may provide excellent grasp, activated solely by strong wrist extensors. Here, wrist extension is of vital importance. However, if motor power in the wrist is absent, or if the muscles are thought to be functionally more useful at a new site, wrist arthrodesis should be done. If the wrist joint cannot be stabilized, motion which should be expressed in the fingers may reach them in a very dilute form, if at all.

Pronation and supination of the wrist are important. Because the wrist flexors rise from the medial humeral condyle, if any strength remains in these muscles, the patient will have weak pronation. Adequate supination may be provided by an active biceps. If this muscle is paralyzed, supination sometimes can be gained for the patient by biceps replacement—for example, transposition of either the pectoralis major or the latissimus dorsi to gain an attachment to the radial tubercle.[2,9] If no supination is present in the face of good pronation, the flexor carpi ulnaris or palmaris longus insertion may be transferred dorsally to the distal radius, thus pro-

viding this motion. An assisting hand does not necessarily require wrist motion or pronation and supination. However, if these movements are present the functional competency of the extremity is greatly enhanced.

ELBOW FUNCTION

Elbow function depends upon three major uses —flexion, extension and stability. At times all three may be restorable. The most important function is flexion which gives ability to lift objects and to move them from place to place without the assistance of either the other arm or a functional aid. The strength of this motion will determine the patient's ability to accomplish many daily habit activities as well as his work. Flexion is best obtained by Steindler's flexorplasty where the wrist flexor origins are shifted proximally on the humerus from the medial humeral condyle.[10] Flexor digitorum sublimus and flexor digitorum profundus origins may be shifted proximally, but use of them without strong wrist flexors is doomed to disappointment. Properly executed, Steindler's flexorplasty provides a very satisfying replacement. Full elbow extension following this procedure is uncommon and is not desirable, since for mechanical reasons the net result is a decrease in overall strength and function. Much greater force is required to initiate flexion from full extension. The elbow flexors seem most competent at about 90 degrees of flexion. Therefore, bone block of the elbow is often done at the time of flexorplasty. This is indicated particularly when only weak flexion is expected to result from the procedure. Bone block of the elbow may be used to produce a flexion contracture of between ninety and one-hundred and thirty degrees. Less strength, therefore, is necessary to produce elbow flexion at such an angle than would be required if extension were complete. The bone block, while limiting the flexion arc, preserves the range of greatest functional usefulness. After bone block the patient also may enjoy some of the advantages of elbow arthrodesis, since the elbow which has been blocked allows for the transportation of objects in the flexed range and without use of muscle power.

Clark's procedure (pectoralis major transplant) or a modification of it done by the authors is useful and can permit the lifting of about eight pounds as measured at the hand. This procedure can be used to aid flexion and will also provide supination by transfer to either biceps or radial tuberosity. The forward transposition of the latissimus dorsi will give results equal to the pectoralis major transposition when done on carefully selected patients. Triceps transfer forward to the biceps tendon or radial tuberosity results in strong flexion, although through a range which approximates about one-third that of the biceps. Elbow extension is useful; one can push with the extended elbow, but this action is so seldom needed for light activities that it is hardly valuable enough to consider replacement in order to obtain it. Gravity will provide this motion for most activities, and this, working against varying positions of elbow flexion with an efficient elbow flexor, will provide power for most necessary function in varying ranges of elbow flexion and extension. In selected cases stability can be gained usefully by arthrodesis or by bone block. When there is no available muscle for replacement, arthrodesis will provide stability in flexion. The arm may then be used for carrying objects.

HUMERAL ROTATION

The importance of humeral rotation is not generally appreciated. A large number of activities of the upper extremities depend upon this movement. Writing and eating are two simple examples. The subscapularis, pectoralis major, teres major and the latissimus dorsi all act to provide internal rotation. The supraspinatus, infraspinatus and the teres minor are the chief external rotators, but the long head of the triceps assists in this motion. If only internal rotation remains in the paralyzed extremity, external rotation can be secured by transfer of the latissimus dorsi and teres major laterally, after the method of L'Episcopo. Humeral abduction is not as important as humeral forward flexion. Humeral forward flexion can be provided by several active muscles, or combinations of muscles. The coracobrachialis, pectoralis major, biceps and the anterior portion of the deltoid all participate in humeral forward flexion. Humeral extension is gained through the posterior third of the deltoid, scapular head of the triceps, teres major and the latissimus dorsi.

Operations to gain humeral abduction usually depend upon the transplants acting as partial but not total replacement. No muscle transplantation procedure now known will of itself functionally rehabilitate the flail scapulohumeral joint. Given a rotator cuff, however, the deltoid action can be replaced at least partially by the use of Ober's procedure[8] in which the scapular head of the triceps and the short head of the biceps are advanced toward the tip of the acromion, or by Hildebrandt's pectoralis major turnback.[4] Even without help from other muscles, Ober's procedure will improve abduction of the flail scapulohumeral joint. In general, Hildebrandt's procedure should be done only when there is at least partial activity of the musculotendinous cuff. Under that condition, especially with some remaining power in the posterior deltoid, Hildebrandt's procedure will be found very helpful. This

potential activity can be appreciated when one observes forced forward flexion in the normal shoulder. On this test the clavicular portion of the pectoralis major is clearly visible. Sometimes a combination of procedures designed to promote strength in the proper plane will be useful. For the most part however, transplants about the shoulder have been disappointing unless used in critically selected cases. Proper synchronization of the scapulohumeral and scapulothoracic force couples is necessary to accomplish abduction, and to provide satisfactory results.

SHOULDER FUNCTION

In a subluxating shoulder, occasionally shoulder tenodesis is of value. This can be accomplished by passing the tendon of the long head of the biceps through the humerus and back to the acromion. Although the tendon may sag after some time has elapsed, this procedure is very useful as a temporary measure.

When scapulothoracic musculature is satisfactory, shoulder arthrodesis may be of great help. However, in a severely paralyzed patient it is not generally a satisfactory functional procedure. If the patient's activities are in the self-care and daily habits range from a wheelchair, shoulder arthrodesis is usually contraindicated. If function of the elbow and hand is good, and the scapulothoracic musculature is satisfactory with a flail scapulohumeral musculature, unilateral shoulder arthrodesis may be performed. This procedure often proves quite satisfactory in the restoration of partial function and can add greatly to the range of arm activity. It gives strength and stability to other upper extremity motions. Shoulder arthrodesis may be helpful in securing proper hand placement and to allow the most effective use of the hands. It can provide the stable link in an otherwise ineffectual upper extremity, allowing heavy objects to be pushed or pulled. With a stable shoulder it may be possible for the patient to pull himself up from a sitting position. If such arthrodesis appears to be the necessary link to stability in an otherwise competent upper extremity, it should seriously be considered. Nevertheless, since there is some sacrifice in shoulder rotation as well as in abduction, arthrodesis should be evaluated in the light of the functional requirements of the individual patient. When loss of mobility will not seriously hamper some essential activity for the patient, fusion of the shoulder is not contraindicated.

When the scapulothoracic force couple is absent, abduction and general shoulder function is sharply impaired even though the distal musculature is good. To provide scapular fixation or motion, the muscular force couple depends upon three major lines of force. These are represented by the forward pull of the serratus anterior upon the inferior angle of the scapula, the upward rotation of the upper trapezius on the outer end of the scapula, and the lower trapezius which provides some rotation of the scapula downward and establishes stability with the assistance of the rhomboids. To accomplish this replacement, various techniques have been used. In brief, however, the serratus component may be best replaced by transfer of the pectoralis major insertion to the lower third of the vertebral border of the scapula. Other transplants that have been reported to have given satisfactory replacement of the serratus magnus component are those of the latissimus dorsi, teres major and pectoralis minor. In some instances useful scapular pre-position has been gained by the use of a fascial transplant from the scapula to the rib cage, choosing a rib two spaces cephalad, to the point of the scapular fixation.

While the experience of the authors in replacement of the lower trapezius force couple has been somewhat limited, it has been found that motion produced by this force couple can be improved by shifting the rhomboids and lower trapezius laterally (the scapula medially) by suspension with fascial strips to the erector spinae; or, by interscapular fascial fixation after the manner of Lowman. The scapula should not be fixed at its distal vertebral margin, for that would prevent rotation. When active motor replacement is not possible, it is best that static positioning be provided. Interscapular fixation provides stability in much the same manner as do the rhomboids, and may also provide some active replacement of this portion of the force couple.

The upper force couple component can be improved by lateral shift of the insertion of the levator angulae scapulae as well as by transfer of the clavicular and sternal origins of the sternocleidomastoid to the acromion. Scapular fixation to the chest wall has also been reported. This should be done only in very carefully selected cases where no decrease in upper extremity function will follow, and where the scapulohumeral component is adequate to justify sacrifice of scapulothoracic motion.

TRUNK STABILITY

Trunk stability must be provided before efficient use of an upper extremity can be made. In severely paralyzed patients trunk stability may often be achieved satisfactorily by using the back and arms of the wheelchair for support or by good corseting. Lowman's[6,7] procedure of fascial abdominal transplantation always should be considered carefully, for both crisscross and lateral transplants may afford stability of the trunk which can be of inestimable value to the patient, since it provides a base from which he may use his upper extremities. Without

such trunk support the patient is unable to lift his arm without throwing himself out of balance. Such fascial transplantation completes the line of stability necessary for suitable arm placement; without trunk stability, the arm cannot be used effectively.

One principle which should be remembered in replacement and substitution operations is that any muscle of sufficient strength can be put to a new task in another site provided it can be brought into place without sacrificing its nerve and blood supply, or if mechanically its line of pull can be instituted in a straight line. Very few transplants are successful when pulleys and angulation are necessary to form the pattern of transposition. Muscle transpositions carry no secondary risks if they are carefully executed and if the muscles chosen for transplantation are not doing an essential motor job where they are normally located.

384 Post Street, San Francisco 8 (Schottstaedt).

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Surgical Treatment for Poliomyelitis Paralysis

Principles of Reconstruction of the Lower Extremities

ALVIA BROCKWAY, M.D., Los Angeles

• **In surgical procedures for the improvement of function in lower extremities paralyzed by poliomyelitis, even the best that can be done will fall far short of normal function. But choosing and carrying out the operation best suited to the paralytic situation of the patient and to the kinds of function that will benefit him most, often can make the patients more self-sufficient, can make improvements that enable him to walk farther with less fatigue, to balance without support, to walk without grotesque limping, or that sometimes permit discarding a brace. Sometimes improving his ability to carry out even seemingly minor tasks of personal care is a definite positive service which to the patient is a boon.**

RECONSTRUCTION in the lower extremities is somewhat different than in the upper extremities, at least to the extent that in the lower extremities it is more important to have strong muscles proximalward while in the upper extremities the joints distalward —wrist, hand and fingers—are the most important.

In other words if one could choose the distribution of paralysis following poliomyelitis, it would be preferable in the lower extremities to have good hip and knee muscles while in the upper extremities, of course, the hands and fingers are the most important. The upper extremity is practically useless without a functioning hand, while in the lower extremity the patient can be made to walk well, without braces, even though he has a completely paralyzed foot, provided there is fair remaining power of the hip and knee.

Surgical reconstruction of the lower extremities following poliomyelitis is a problem that presents many facets and numerous combinations of disability. For this reason it is impossible to lay down hard and fast rules of surgical procedure. Each patient must be studied and operation outlined after all the facts and findings are carefully evaluated.

It is not enough that the surgeon be competent to perform the various surgical procedures that will be necessary in the reconstruction program. Given a patient with one or both lower limbs paralyzed or partially paralyzed with poliomyelitis, an experienced surgeon should be able to outline a comprehensive program that may extend over several years. The timing as to the age at which operation is done and the sequence of the various surgical steps can be of great importance.

There are many factors to be weighed. The age of the patient at the time he had poliomyelitis has a great deal of bearing on the surgical treatment that will be indicated in the rehabilitation program.

I. THE INFLUENCE OF AGE IN PLANNING THE SURGICAL PROGRAM

The indications for operation, particularly on the lower extremities and the spine, are considerably less in the case of a patient who contracted poliomyelitis after the age of 14 or 15 years than in a patient who had the disease in infancy or young childhood. After growth is complete, deformities are not a problem. In a young child certain deformities will develop in spite of the best of care. In adults there is little tendency to develop hip and knee contractures, calcaneus, valgus, varus or equinus deformities of the feet regardless of the degree and distribution of the paralysis. Therefore, in adults, tarsal stabilization is seldom necessary. On the other hand, operations to effect arthrodesis are an accepted and common procedure when poliomyelitis occurs early in life. Likewise, in adults it is not necessary to transplant muscles to the inner or outer borders of the feet because varus and valgus deformities do not occur to any degree. Sometimes it is necessary to transplant muscles to overcome an uncontrollable foot drop with a steppage gait, and in some instances it may be necessary to transplant available muscles to the os calcis to strengthen a weak calf muscle. In general, however, indications for operations on adults are much less than for operations on a young child.

II. OPERATIONS ON THE FOOT AND ANKLE IN SMALL CHILDREN

When poliomyelitis is contracted in infancy, the problem is quite different. Increasing deformity occurs regularly and the indications for operation are much greater.

It used to be held that transplants about the foot

Presented before the Section on Orthopedics at the 85th Annual Session of the California Medical Association, Los Angeles, April 29 to May 2, 1956.

and ankle should not be done until after the foot had been stabilized. This is still a good rule, but there are exceptions. Many surgeons hesitate to transplant muscles in the foot of a very young child in whom the foot has not been stabilized. The reasons are as follows:

(a) Transplants in a weak, wobbly foot are not as effective as they are in a more mature foot that has become stabilized.

(b) It is possible, by early transplants before tarsal arthrodesis, to reverse the deformity, particularly when the operation is done to correct a varus or valgus deformity.

A. Calcaneus Deformities

There is no treatment or brace that will effectively prevent a calcaneus deformity if the calf is paralyzed, and the deformity is made still worse if there is a strong anterior tibial muscle.

A strong calf muscle is so important for good locomotion that, in the author's opinion, all available muscles should be used to reinforce the calf. Moreover, the reinforcement should be done early rather than to wait until the foot is sufficiently mature for triple arthrodesis. This early transplant not only improves the gait but it also lessens the dreaded calcaneus deformity.

The most important muscle to transplant is the anterior tibial, for it is a powerful one and when transplanted it adds materially to the strength of the calf muscles. If it is not transplanted early the calcaneus deformity will increase. The foot finally reaches a point where adequate plantar flexion cannot be obtained even after the anterior tibial muscle is removed and transplanted.

If adequate other muscles are available, it probably is better not to use the peroneus longus, for this muscle is an effective plantar flexor of the foot and aids in the final push-off of the foot in walking.

B. Equinus Deformities

Equinus deformity is frequently a combination of a horizontal os calcis due to a short calf muscle and a drop of the forefoot due to contracted plantar structures.

In a young patient a short calf muscle can be elongated by persevering stretching in a plaster cast. Since the gastrocnemius and soleus muscles are important ones for locomotion, one hesitates to weaken them by surgical lengthening if it can be avoided.

The drop of the forefoot, on the other hand, is a difficult deformity to prevent and once established cannot be dealt with except by operation. If operation is done early and the foot is not rigid, operation on soft tissue is usually adequate. Correction should be maintained for some months in walking short-leg plaster casts to prevent recurrence.

C. Valgus Deformities

Severe valgus deformities should be corrected early by transplants or other operation rather than waiting until the foot is sufficiently mature for triple arthrodesis.

The Grice procedure has been a real advance in dealing with valgus deformities of the foot in very young patients. It restores the upright diameter of the foot and overcomes the valgus deformity much better than transplants alone. This operation also prevents a reversal of deformity (which may occur if only tendon transfers are done) if carried out at an early age. The Grice operation can be done at a much earlier age than the conventional triple arthrodesis.

D. Varus Deformities

Occasionally a severe varus deformity cannot be controlled by bracing. In such circumstances, it would seem logical to transfer the insertion of the anterior tibial tendon to the outer border of the foot, preceded of course by plaster cast correction even before the foot is mature enough to do an operation to bring about arthrodesis.

E. Panarthrodesis

In properly selected cases in which there is pronounced weakness of the calf muscle and weakness of the knee to the extent that the patient may be unable to walk without a brace, the panarthrodesis operation is a very successful procedure. There is a tendency in such cases to set the feet with the heel too high. This makes walking difficult and in a growing child it tends to create a back-knee deformity. Some surgeons prefer to wait until the foot is through or almost through growing before performing this operation. It is the author's belief that this operation is better done around the age of nine or ten years. The adult takes a much longer time to accommodate himself to arthrodesis of the ankle than does a younger patient. A young patient develops better compensatory motion distal to the fusion area than does an adult. Many surgeons routinely do a panarthrodesis in two stages for fear of causing an avascular necrosis of the astragalus. The author has yet to observe such a complication, and can see no reason why the entire operation cannot be done in one stage. In a paralytic foot panarthrodesis can be easily and quickly done.

III. KNEE DISABILITIES

The surgical possibilities for improving a weak knee are much less than for a weak foot and ankle.

A. Weak Quadriceps Mechanism

Operation to improve weak extension power of the knee is not looked upon too favorably in some

quarters, but the author believes that in properly selected cases it has real value. It is true that if the patient has a good calf muscle and more particularly if he also has fair extension power of the hip, he can walk without a brace and is able to lock his knee effectively. However, these patients must be on constant guard to make sure that the knee is locked in extension with each step. They have a certain amount of insecurity if the knee is caught off guard in making an unexpected step and they have a certain amount of fatigue on walking. With a successful transplant to improve the quadriceps power, the patients comment on the fact that they can walk longer distances without fatigue, and in general they are very pleased with the operation. If the operation is done in circumstances not suitable for it, the end results are disappointing. The hamstring muscles together with the gastrocnemius muscle are important stabilizers of the knee. For this reason one should make certain that after the transplant there is a fair amount of flexion power left. Also the operation will be disappointing if it is done in a patient with a very weak calf and very weak extension power of the hip.

When adequate muscles are available, the biceps and at least one of the inner hamstring muscles should be transplanted in order to balance the pull on the patella and thus avoid outward subluxation of the patella which might occur if only the biceps muscle were used. Sometimes, of course, this is not possible and the biceps muscle has to be used alone, but when this is done care should be taken to dissect the biceps muscle proximalward as far as possible in order to get a fairly straight line of pull on the patella. There is probably less chance of later lateral subluxation of the patella if the biceps is inserted into the distal split end of the rectus femorus as well as into the patella itself.

B. Flexion Deformities

Flexion deformities are a frequent occurrence in young patients with poliomyelitis. If the flexion deformity is recognized early, it usually can be controlled by wedging casts, but if the deformity is fixed and long-standing, then persistent wedging is not likely to be successful and it may even cause a backward subluxation of the tibia. In such cases it is much better, in the author's opinion, to do a truncated V osteotomy in the supracondylar region of the femur. With osteotomy of this type there is no difficulty in controlling the short distal fragment and healing occurs rapidly.

C. Knock-Knee Deformities

A knock-knee deformity is common when poliomyelitis occurs early in life. It is usually associated with flexion and abduction contracture of the hip, a contracted fascia lata and intermuscular septum, flexion deformity of the knee, and tibial torsion deformity of the leg. The author believes that in knock-knee deformity of any consequence the best solution is a truncated V osteotomy on the medial side of the femur in the supracondylar region, together with transverse severance of the fascia lata above the knee and resection of the intramuscular septum.

D. Back-Knee Deformities

Back-knee deformities are very distressing and are a frequent complication of poliomyelitis. So far as is known, there is no adequate way to cope with this problem by soft-tissue operation. The best practical result is obtained by a high osteotomy of the tibia and fibula to create an anterior bowing at the osteotomy site sufficient to offset the genu recurvatum. In doing this operation the cut on the tibia should be made as high as possible, while that on the fibula should be made at a lower level in order to avoid a stretch paralysis of the common peroneal nerve.

E. Tibial Torsion Deformities

Tibial torsion deformities in varying degree are very common in patients who have had poliomyelitis affecting the legs. Even though the patient has to use a long-leg brace permanently, it would seem that correction of such a deformity is justifiable, for otherwise brace fitting is difficult and the deformity tends to create a varus attitude of the foot with formation of painful calluses along the outer border.

There is one set of circumstances in which correction of tibial torsion deformity must be given particularly careful thought. If the knee is extremely weak, the tibial torsion deformity aids the patient in locking the knee when walking without a brace. If the deformity is corrected in a borderline case in which the patient is just barely able to walk without a brace, the correction may be disappointing in that the patient may thereafter have to use a brace to walk.

Whenever the decision is a matter of choice, leg deformities, especially tibial torsion and knock-knee, should be corrected before tarsal arthrodesis or panarthrodesis is carried out. To reverse that order might change a satisfactory position of the foot into a deformity that would necessitate a second operation on the foot.

F. Epiphyseal Arrest

Disparity in the length of the legs is always a problem when dealing with poliomyelitis of the lower extremities. For this problem one has the choice of epiphyseal arrest, stapling, or shortening the leg on the good side after growth is complete.

Generally speaking, most orthopedic surgeons probably would prefer epiphyseal operation to femur shortening. In recent years the stapling operation has been widely used, but the experience at the Orthopaedic Hospital, Los Angeles, has been that epiphyseal arrest is much more dependable. In the author's practice the correction of knock-knee deformities has worked out very well with stapling, and often this can be done instead of osteotomy, provided the leg has sufficient future growth.

G. Arthrodesis of the Knee

In flail legs, arthrodesis of the knee will sometimes make it possible for a patient to discard a long-leg brace. This operation, however, has not been widely used, probably largely because the patient himself is usually opposed to stiffening of the knee joint.

IV. HIP DISABILITIES

Operation to improve the strength of a badly weakened hip leaves much to be desired.

Flexion and abduction deformities of the hip are common and these can be corrected to the patient's advantage.

As far as transplants or transfers of hip muscle to improve strength are concerned, there is usually little choice.

The iliopsoas is a powerful muscle and is frequently spared. The author has had no personal experience in the use of this muscle to improve abduction or extension, but surgeons who have used it to improve the abduction power have reported encouraging results.

A. Paralysis of the Abdominal Muscles

Sometimes weakness of the hip is complicated by paralysis of the abdominal wall. In order for the hip muscles to function to their maximum potential, the fixator muscles—which are primarily the abdominal muscles—must be strong. If the abdominal wall is weak, the hip muscles are working below maximum efficiency. Therefore a surgeon dealing with a weak hip should direct his attention to the abdominal muscles. Fascial abdominal transplants properly placed will give some indirect additional hip strength and stability.

B. Fascial Hip Transplants

In addition to the above indirect approach to the problem, fascial transplants from the trochanter to the abdomen and back offer a direct approach to the hip problem.

If the abdominal wall is strong and hip abduction is decidedly weak, the following procedure should be considered: The fascia lata is stripped upward from above the knee and the proximal end, without cutting it, is anchored to the greater trochanter. The distal free end is passed subcutaneously and woven into a large mass of the external oblique muscle, the distal end of which has been freed and stripped proximalward from the ilium.

If hip extension is severely impaired, the fascial strip can be passed posteriorly and woven into a mass of the detached erector spinae muscles of the lumbar region, or, preferably, into a detached mass of the latissimus dorsi muscle.

Should both hip abduction and extension be involved, half of the fascia can be sutured to the latissimus dorsi muscle and the other half to the external oblique muscle of the abdomen.

It sometimes happens, of course, that the back and abdominal muscles are weak and cannot be used for a transplant. In such instances some help for stability can be obtained by suturing the turn-back flap of the fascia lata to the rim of the ilium or to the rib cage.

None of these operations works miracles. They do not greatly decrease the degree of limping nor improve active abduction or extension of the hip materially, but they do give added stability, a feeling of additional security and a sense of more endurance for walking and standing.

C. Hip Fusion

As in the case of the knee, hip fusion for a badly paralyzed leg has not been greatly used by most orthopedic surgeons. This probably can be ascribed in part to hesitancy of the patient and in part to reluctance on the part of the surgeon. That the end results in some cases have turned out well cannot be denied.

1930 Wilshire Boulevard, Los Angeles 57 (Brockway).

Chronic Fecal Impaction in Children

GERALD MASON FEIGEN, *M.D.*, San Francisco

• **In seventeen cases of chronic fecal impaction in children the main symptoms were severe constipation, pain and bleeding on defecation, soiling of the underpants, and anxiety. The main findings were large impactions in the rectum, minor injuries of the anal canal, some degree of patulous anus and soiling of the perianal skin.**

Good results were obtained in all cases with treatment that included giving dioctyl sodium sulfosuccinate and flavored petrolatum, attention to diet, encouragement of the patient and advice to the parents.

IT IS THE PURPOSE of this communication to present the symptoms and the findings associated with chronic fecal impaction in children, and to outline a method of treatment. This distressing condition is not rare, and it may easily go unrecognized. It causes disturbing psychologic problems for both the child and the parents—problems that can quickly abate when the cause is known and the treatment started.

The series here reported upon included 17 patients, nine females and eight males varying in age from three months to ten years. The average age was 7.25 years. Nine of the patients were between seven and ten years of age. The duration of the symptoms varied from two months to five years, with an average of 19 months. Clinical data is summarized in Table 1.

The chief complaint in all cases was severe constipation. Large stools were passed at intervals of from three to twelve days. The stools, often large enough to obstruct the plumbing, usually caused pain and slight bleeding because of minor injuries to the anal canal. Soiling of the underclothes was a common secondary complaint. Soiling often caused a characteristic walk with the knees brought together and the back slightly bent in an apparent attempt to separate the skin from the soiled undergarments.

Anxiety on the part of the child and parents was expressed in all cases. The children were afraid to attempt a bowel movement; those of school age were reluctant to try passing an impaction in the morning since the slow painful process might make them late for school. At school they were unwilling to have a movement for fear of obstructing the plumbing or taking too much time. For the same reasons they were unwilling to defecate anywhere but at home, and they refused invitations to their friends' and relatives' homes.

Nine of the children expressed the fear that there was something very unusual about their inner anatomic structure, and exhibited both embarrassment and feelings of inferiority. The seven who soiled their underpants had the most serious psychological symptoms. They seemed withdrawn, embarrassed by their walk, fearful of offending by their odors. They often refused to play with other children.

From the Department of Proctology, Mount Zion Hospital, San Francisco.

Submitted July 26, 1956.

The parents in all cases were concerned about the problems of the child and about the obvious helplessness of the child to cope with them. They feared some unusual anomaly, malformation or disease, and they disliked the soiling because of the odors, the isolation of the child and the extra laundering required.

The initial impaction was apparently the result of a number of factors: Ignoring the urge to defecate, taking drugs such as codeine during infection of the upper respiratory tract, and minor injuries to the anal canal caused by a hard stool and resulting in painful defecation. Once the impaction formed, an attempt to pass it caused much discomfort and anxiety and initiated an obvious vicious cycle. The soiling was apparently the result of the inability of the sphincter to retain small amounts of liquid fecal material that seeped down over the impaction. This, plus the impaction itself, seemed to exhaust the sphincter and to cause a loss of tone.

The children were healthy and, although usually shy, anxious for help. In most cases the impaction could be palpated abdominally and there was a mild degree of abdominal distention. No abnormalities were noted upon external inspection of the anus except that in cases in which soiling was a factor the perianal skin was contaminated with feces. Before digital examination was attempted, an applicator dipped in a topical anesthetic ointment was inserted into the anal canal and left there for five minutes. Large impacted stools felt on digital examination were not necessarily hard. In some cases they were soft and gummy although more often firm and formed. In the cases in which soiling occurred there was a varying degree of patulous anus. Patients with minor injuries of the anal canal had some degree of sphincter spasm. An anoscope of the

TABLE 1.—*Clinical Data on 17 Cases of Fecal Impaction in Children*

Case	Age and Sex		Duration	Degree of Pain*	Degree of Soiling*	Degree of Bleeding*	Anal Injuries*	Degree of Patulous Sphincter*
1	7 years	M	3 months	0	3	0	0	1
2	8 years	M	5 years	0	4	0	0	3
3	9 years	F	3 years	3	0	½	2	0
4	8 months	F	6 months	4	0	2	3	0
5	5 years	F	18 months	1	1	1	1	1
6	6 years	M	1 year	1	0	1	1	0
7	10 years	F	30 months	2	0	1	1	0
8	4 years	F	1 year	2	0	1	1	0
9	7 years	M	2 years	3	0	2	2	0
10	23 months	F	5 months	1	0	2	2	0
11	8 years	M	2 years	0	4	0	0	3
12	5 years	M	10 months	1	0	1	1	0
13	6½ years	F	1 year	0	3	0	0	3
14	4 years	F	11 months	0	4	0	0	4
15	8 years	M	2 years	3	0	2	2	0
16	5 years	F	14 months	1	0	1	1	0
17	7½ years	M	27 months	0	4	0	0	3

*Symptoms are graded from 0 to 4 to indicate degree of severity.

size used for adults was passed in all cases. In five patients small cracks were observed in the anoderm at the level of the mucocutaneous line and just below it. In no case was there a true fissure-in-ano or cryptitis. The lesions were superficial and obviously of traumatic origin.

Proctoscopic examination was not attempted until after treatment was started and the rectum was reasonably empty. There were no cases of clinically recognizable megacolon and there were no polyps, ulceration or other disease. It was interesting that patients who had frequent soiling had patulous anus but no pain, bleeding or ulceration and that patients who were not soiling had an increase in sphincter tone and frequent pain, bleeding and ulceration.

PREVIOUS TREATMENT

Ten of the patients had been observed previously by physicians and had been given a number of laxatives with no significant relief. Enemas of soapsuds or of saline, peroxide or sodium phosphate solutions gave occasional temporary relief but were more often ineffective. In four instances, impacted feces had been removed with the patient under general anesthesia. Four patients were being given psychiatric treatment because of the soiling.

TREATMENT

Management of this condition involved topical, dietary, systemic and psychological aspects. The traumatized areas in the anal canal were cauterized with 3 per cent silver nitrate solution. Where these lesions were numerous or deep, insertion of a 5 per cent ichthyol ointment twice daily for a week was recommended. A regular diet with some emphasis on leafy vegetables and fruit was outlined. Adequate intake of fluids, including a good sized glass of cold fruit juice for breakfast and four to six glasses of liquid during the day, was emphasized. Skimmed milk was substituted for whole milk. Rich candies and dessert were omitted. Fifteen to 30 drops of dioctyl sodium sulfosuccinate (a wetting agent which so affects the surface of the stool as to permit the penetration of water or oil) was prescribed to be taken morning or evening in milk or fruit juice. A flavored petrolatum given along with the dioctyl sodium sulfosuccinate in an average dose of one tablespoonful morning and night, in the early weeks of treatment seemed to bring about better results than dioctyl sodium sulfosuccinate alone. The dosages were adjusted downward as time passed.

Encouragement was given both to the parents and the child. Wherever possible the child was seen alone in the consultation room and was encouraged to make reports to the physician over the telephone. The family was told that results would come during the next 30 days and not to be discouraged if nothing remarkable occurred during the first week or two. Development of habits of defecation was stressed. The time suggested as preferable was before school in the morning, but if necessary any time at which the child could go to the toilet regularly each day at the same time was acceptable. Sphincter exercises were suggested for patients who had soiling, but only after some regularity of defecation had been brought about.

RESULTS

In all cases the chronic fecal impaction ceased and the children developed regular bowel habits. Absence of pain was noted in all cases after one week. For the first two weeks, there would be one or two large stools per week, and the frequency

increased after that; by the end of four weeks the average frequency was five times weekly, and by six weeks all children were having a bowel movement daily. Discontinuation of the medicine was begun after 30 days of daily regular bowel movement. At first both the oil and dioctyl sodium sulfosuccinate were reduced in dosage and then the oil was eliminated. The drops were continued until 60 days of regular bowel movements had elapsed. An occasional setback during this period (following an emotional upset or minor illness) was dealt with by temporarily raising the dosages. In five cases there was a minor recurrence of constipation after cessation of all treatment. In those cases a return to medication for a few days sufficed. These patients or their parents reported by telephone twice weekly. Considerable adjustment in dosage was indicated. A remarkable change in the psychological attitudes of these children and their parents occurred. The children returned to normal relationships with their chums. Bowel movements were no longer a topic of conversation in the home. This was especially gratifying in the cases in which soiling had occurred.[2]

COMMENT

Dioctyl sodium sulfosuccinate is also known as Aerosol—O. T. Benaglia, Robinson, Utley and Cleverdon[1] studied the toxicity of the drug in rats. Fifty rats given oral doses of 0.87 grams per kilogram of body weight developed no significant growths or microscopic pathologic changes in a period of six months. The erythrocyte and leukocyte content and the leukocyte differential were unaffected. Wilson and Dickinson[3] reported the use of this agent for 12 years in many hundreds of cases without development of evidence of toxicity of any sort. The preparation is distributed commercially in capsule and liquid form or may be prescribed in the 1 per cent aqueous solution, each milliliter containing 10 milligrams.

An attempt is being made to obtain barium enema roentgen examination in all the cases here reported upon. Although none of the patients have had any symptoms of congenital megacolon, they will all be carefully observed and in the younger patients, especially if there is repeated recurrence of symptoms, biopsy for ganglia will be done. Clinically, however, no cases in this group seemed to raise a question of Hirschsprung's disease.

2000 Van Ness Avenue, San Francisco 9 (Feigen).

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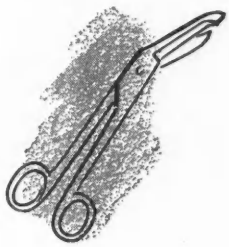

Intestinal Obstruction Due to Gallstones

CLYN SMITH, JR., *M.D.*, and JOHN H. GRATIOT, *M.D.*, Monterey

THE DIAGNOSIS of an intestinal obstruction caused by a gallstone, a condition that usually can be dealt with successfully by early operation, is often missed simply because the possibility is not considered in the differential diagnosis.

This condition should be suspected in any patient with the clinical symptoms of a small bowel obstruction who has no scars from previous operation and does not have a hernia. A history of gallbladder disease is helpful. The most important radiologic sign is air in the common bile duct, which is seen as a "Y" and indicates a cholecystenteric fistula. The fistula is the result of the erosion of the gallstone from the side of the gallbladder into the bowel, usually the duodenum. The stone may lodge in the duodenum, as in one of the cases reported herein, but more frequently it will pass down the small intestine to lodge in the jejunum, ileum or, very rarely, even in the sigmoid colon.

According to Denneen and Broderick,[1] the first recorded case of gallstone obstruction (in 1654) was reported by Bartholin, and Wayne collected reports of 334 cases from the literature in 1914. Women are affected about fifteen times as frequently as men, although they have gallstones only about three times as often as men. The usual age range for an obstruction of this type is 55 to 75 years.

Because of delay in diagnosis and the frequent medical complications in patients with this condition, mortality rates have been high. In older series, the mortality rates were from 40 to 70 per cent. In most later series mortality has been much lower, and in a few small series (including the present series of six cases) none of the patients died.

It is important not to operate on a patient with a gallstone obstruction of the intestine until the fluid and electrolyte balance is restored. On the other hand, an undue delay of several days, during which time the patient may deceptively appear to be improving, is hazardous.

The preoperative preparation of the patient includes passing a long decompression tube into the small bowel. The authors prefer a single lumen mercury bag tube such as those of the Cantor, Harris or Kaslow types rather than the conventional double lumen Miller-Abbott tube, because of the larger lumen available for decompression. After the tube has been passed, the patient is hydrated with intravenous fluids. A blood transfusion preoperatively is sometimes helpful. Because of the high incidence of wound infection (in three of six cases in the present series) and the possible contamination of the peritoneal cavity during enterotomy, administration of antibiotics should be started preoperatively and continued postoperatively. Preexisting complicating factors are numerous in patients with bowel obstruction by gallstones; diabetes and heart disease are common.

Submitted May 6, 1956.

• The possibility of intestinal obstruction caused by a gallstone should be considered in any older person who has vomiting, abdominal distention, abdominal pain and absence of abdominal scars from previous operation.

At operation the small intestine is typically dilated and when it is traced to the obstructing point the impacted gallstone can be palpated. The stone should be removed through an incision at a site slightly proximal to the resting place of the impacted stone. This incision may be made in either a longitudinal or a transverse direction, but it should be closed in a transverse direction. Search should be made for other stones, particularly if the primary one is faceted.

Attempt should not be made at this operation to dissect out the cholecystenteric fistula or gallbladder. It is rarely necessary even at a later date. In the cases here reported, no difficulty was encountered owing to leaving the fistula intact, since it simply forms another channel for bile to enter the intestinal tract. The abdominal wound is closed in layers with chromic catgut supplemented with retention sutures of wire or silk. Nonabsorbable buried sutures are not used in the deep layers because of the high incidence of wound infection after the operation.

REPORTS OF SIX CASES

CASE 1. A 48-year-old woman entered Alameda County Hospital, Oakland, on December 29, 1948. At the time of admission she had had nausea, abdominal pain and vomiting for two weeks, and gastric suction had been carried out for 12 days. She gave a history of having had attacks of severe abdominal pain three years earlier and again six months previously. The possibility of a gallstone

obstruction of the duodenum was considered preoperatively (Figure 1). She was operated upon* January 11, 1949. The duodenum was opened, and two large gallstones were found to be completely obstructing it. Three smaller stones were also present (Figure 2). The stones were removed. Inside the duodenum, the inner wall of the gallbladder was seen fused to and actually forming a part of the wall of the duodenum. The duodenum was closed and the gallbladder not disturbed. There was slight but prolonged drainage from the wound postoperatively. When last observed seven years later the patient was in good health but had occasional epigastric pain and pain in the right upper quadrant of the abdomen.

CASE 2. A 66-year-old diabetic man entered the Peninsula Community Hospital, Carmel, on January 21, 1954. He had noted the onset of nausea and vomiting one week previously while on a trip to Southern California. He attributed the illness to the Southern California smog. He had had diabetes for eight years, and auricular fibrillation, for which he had been taking digitalis, for several years. A clinical diagnosis of probable small bowel obstruction was made. Decompression was carried out with a long, mercury-tipped Kaslow tube, and fluids containing electrolytes were given intravenously. Twenty-four hours after the patient was admitted, laparotomy was done† and a large gallstone obstructing the distal jejunum was palpated. The stone was removed through a transverse incision in the jejunum. The patient made an uneventful recovery and when examined two years later had no further abdominal trouble.

CASE 3. An 83-year-old man entered the Peninsula Community Hospital, Carmel, on June 9, 1954, with complaint of intermittent abdominal pain of a week's duration. Two others members of his family had become ill when he did—with nausea, vomiting and diarrhea—after eating strawberries. The others recovered in 36 hours, but the patient continued to have intermittent abdominal cramps, nausea and vomiting. An abdominal roentgenogram was interpreted as showing "early or incomplete small bowel obstruction." At laparotomy‡ a gallstone 5 x 8 cm. was palpated in the distal third of the ileum, with dilated bowel proximal to it. The gallstone was removed through a transverse incision in the ileum. Recovery was uneventful and the patient then remained well.

CASE 4. A 66-year-old woman was admitted to the Peninsula Community Hospital, Carmel, on June 26, 1954. Three days previously she had been seized with sudden pain in the upper abdomen which continued intermittently, with vomiting, until admission to the hospital. X-ray examination of the abdomen upon admission showed a dilated small intestine and air in the common bile duct (Figure 3). A long, mercury-tipped Kaslow tube was passed for decompression. Fluids were administered for hydration and the patient was operated upon the day of admission. A large gallstone obstructing the distal ileum (Figure 3) was removed from the intestine through a transverse incision.§ The postoperative course was complicated by wound infection which

Figure 1 (Case 1).—Note the dilated stomach and the intraluminal obstruction in the duodenum. Air can be seen in the common duct.

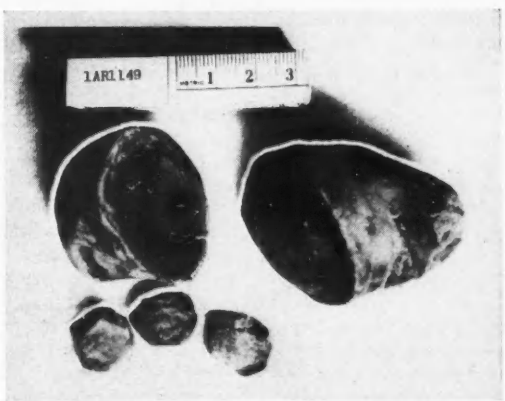

Figure 2.—Gallstones removed from the duodenum in Case 1.

*Operation by Dr. Sumner Everingham.
†Operation by C. S.
‡Operation by J. G.
§Operation by C. S.

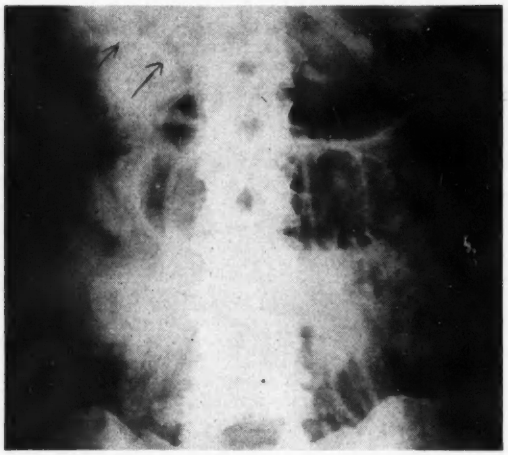

Figure 3 (Case 4).—Note air in the common bile duct and dilated small bowel.

cleared after proper drainage. When last examined a year and a half later the patient was well and asymptomatic.

CASE 5. A 55-year-old diabetic man was admitted to Monterey County Hospital, Salinas, on August 3, 1954, with complaint of cramping abdominal pain and vomiting, which had begun 24 hours previously. X-ray examination of the abdomen showed small bowel obstruction. Laparotomy** was done the following day and a large gallstone obstructing the ileum was removed. The postoperative course was complicated by wound infection. When observed seven months after operation the patient was asymptomatic.

**Operation by Dr. Aubrey Nunes.

CASE 6. An obese 62-year-old Mexican woman was transferred to Monterey Hospital, Ltd., at Monterey, on October 2, 1955. She had become ill with intermittent abdominal pain and vomiting ten days previously, had been hospitalized four days before being transferred to Monterey Hospital, and gastric suction and administration of intravenous fluids had been carried out. The diagnosis of a gallstone ileus seemed likely because of roentgen evidence of a small bowel obstruction, the absence of operative scars or hernia, a history of suspected "gallbladder trouble" for 15 years. At laparotomy§ on the day of admission to the Monterey Hospital, a large gallstone obstructing the distal ileum was removed. The patient was discharged from the hospital six days postoperatively and thereafter remained well.

Cass Street at Carmelita Avenue, Monterey (Smith).

§Operation by C. S.

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Pulmonary Histoplasmosis

A Report of Two Cases

SERGIUS BRYNER, M.D., Palo Alto, and
S. FRED KAUFMAN, M.D., San Jose

IN THE LAST FEW YEARS histoplasmosis has changed from a little known and poorly understood disease to one which is now widely recognized and less mysterious. For many years after its discovery by Darling in Panama in 1905,[3] it was only rarely identified and it remained a medical curiosity. In 1912 da Rocha-Lima found evidence that *Histoplasma capsulatum* was a fungus rather than a protozoa as Darling had supposed. Development of knowledge of the disease was exceedingly slow. The fifth known case—and the first to be reported in this country—was described in 1926 by Watson and Riley in Minnesota.[12] Even as late as 1945[5] only 71 cases had been reported in the literature, and in 1949 it was still considered by one investigator to be an almost uniformly generalized and fatal disease.[7]

It is now known to be a widely distributed disease; it has been recognized in at least 22 countries throughout the world and in at least 32 of the United States. The greatest density of incidence is in the east central part of the United States where, in certain locations, as high as 80 per cent of the population has been found to have positive dermal reaction to the histoplasmin antigen.[9]

The infection is now known to produce a great variety of clinical manifestations, ranging from an acute fulminating disseminated infection involving almost every organ of the body to the subclinical form which makes up the great majority of cases and which is identifiable only by the presence of calcifications in the lungs, spleen and elsewhere, and a positive reaction to skin test. The realization that there were great numbers of people in the east central part of this country who had pulmonary calcifications and negative reaction to tuberculin tests gave great impetus to the discovery of the usual mild or subclinical form of the disease.[2]

In the past ten years various syndromes caused by histoplasmosis infection have been described, including acute and chronic pulmonary infections, adrenal involvement producing adrenal insufficiency, cutaneous and ocular forms, naso-oral, laryngeal and pharyngeal types, lymphomatoid forms, enteritis and endocarditis.

It is now known that histoplasmosis can occur in man as a result of contact with infected soil or other forms of infected organic dust. The fungus can be transmitted from one animal to another. However, there are no acceptable case reports on record which demonstrate that transmission of the disease from animal to man or man to man has occurred. This, of course, does not rule out the possibility that such routes of transmission actually do exist. The portals of entry are chiefly the respiratory and alimentary tracts although primary infection may occur in the skin and elsewhere on the body membranes. Epidemics of acute disease are being recognized now as probably caused by mass exposures to the fungus in infected soil or dust.[4] As with coccidioides, laboratory workers frequently develop positive reaction to histoplasmin skin tests in the course of making culture transfers and cases of laboratory-acquired histoplasmosis have been reported.[11] In recent years a number of competent reviews of the disease have appeared,[1,7,9,10] and no attempt will be made here to cover the now extensive literature.

The purpose of this communication is to describe two cases of pulmonary histoplasmosis, both of which may have been in an active stage. The importance of recognizing histoplasmosis infections, particularly of the lungs, has been amply demonstrated by Puckett,[8] Peabody and co-workers,[6] and by Zimmerman.[13] They showed that pulmonary histoplasmosis is an established clinical entity which frequently mimics tuberculosis. The erroneous diagnosis of tuberculosis often leads to prolonged antituberculosis therapy and numerous other inconveniences both to the patient and the family.

Zimmerman's[13] observations are particularly revealing and worthy of note. He studied a series of 35 surgically resected discrete pulmonary granulomas which had previously been diagnosed by various contributing pathologists as having the macroscopic and microscopic characteristics of tuberculosis. By using the Ziehl-Neelsen stain for acid-fast bacilli and the periodic acid Schiff stain for fungi, Zimmerman was able to find acid-fast bacilli in six cases, coccidioides in three cases and histoplasma in 19 cases. No organisms were found in seven of the granulomata studied. He further stated that this study supports the impression among pathologists at the Armed Forces Institute of Pathology, who have been interested in this problem, that histo-

Submitted May 6, 1956.

plasma may be the most frequent cause of the granuloma commonly labeled "tuberculoma of the lung." It should now be recognized that it is possible by present culture methods and by the use of the periodic acid Schiff stain to identify the fungus in surgical specimens. These techniques should be employed in all cases where the cause of the resected granuloma is not clear.

REPORTS OF TWO CASES

CASE 1. A 34-year-old office manager was seen April 26, 1954, because of an abnormality found in the left lung on routine Naval Reserve x-ray films. The patient was born in Houston, Texas, had spent some time during World War II in the South Pacific and gave no history of clinically recognizable pulmonary disease. During World War II, while he was in the service, routine x-ray films of the chest had been taken and no abnormality mentioned. Following the war he joined the Naval Reserve and in 1947 a calcification (Figure 1) was noted in the left midlung field on routine x-ray examination. Another routine x-ray film in 1953 showed an identical lesion. In a film taken in March 1954 (Figure 2) a soft tissue halo appeared around the calcification, and the calcification contained several small radiolucent areas. There was no history of recent cough, pain in the chest, loss of weight, night sweats or hemoptysis. The patient's father was said to have died of tuberculosis many years previously.

On physical examination the patient appeared well and there was no evidence of loss of weight. The hematocrit determination was 46 per cent. The erythrocyte sedimentation rate was 4 mm. in one hour (Wintrobe). Leukocytes numbered 9,800 per cu. mm.—31 per cent lymphocytes, 6 per cent monocytes, neutrophils 56 per cent and eosinophils 7 per cent. The urine was normal. An x-ray film of the chest one month later showed no significant change.

Results of skin tests were as follows: Purified protein derivative No. 2, negative; coccidioidin 1:100, negative; histoplasmin 1:1000, moderately positive reaction in 48 hours. The serum was sent to Dr. Samuel B. Salvin at the National Microbiological Institute, Hamilton, Montana, where complement fixation for histoplasmosis was positive in a dilution of 1:2.

On June 3, 1954, a wedge resection was done. Removed from the superior segment of the left lower lobe was a 5 cm. lesion in the substance of the lung and from the visceral surface of the pleura five plaques 1 to 2 mm. in diameter.

On pathological study a subpleural lesion 3 cm. in diameter was observed. It was centrally calcified and contained a cavity approximately 1 cm. in diameter filled with purulent material of greenish yellow color. Cultures of the purulent material yielded *Aerobacter aerogenes*. Acid-fast stains and culture for *Mycobacterium tuberculosis* were negative. Culture of the material for fungi also failed to produce any growth. Upon microscopic examination of the specimen, granulomatous lesions of varying

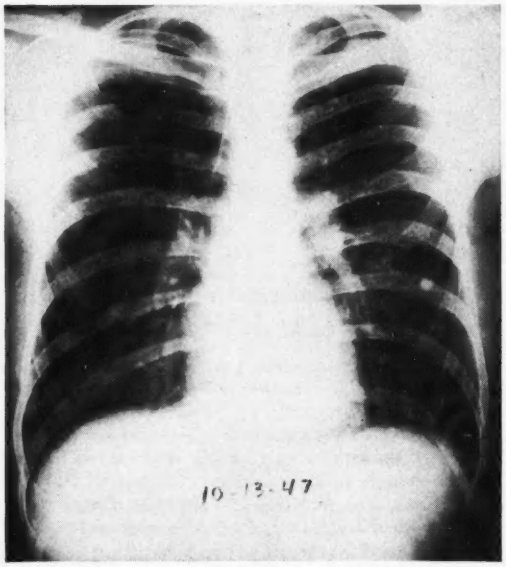

Figure 1 (Case 1).—Calcification in left midlung field.

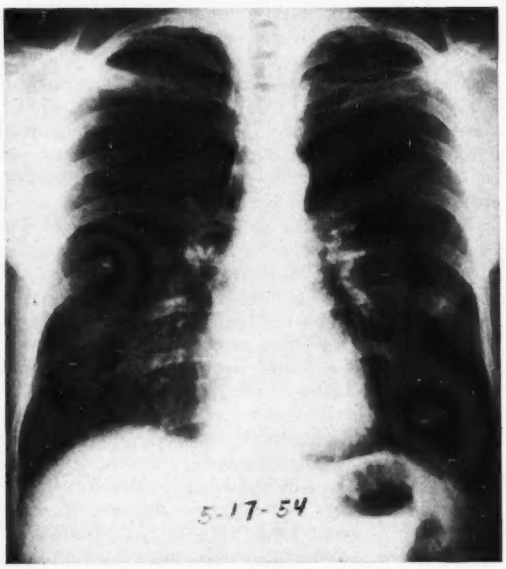

Figure 2 (Case 1).—Soft tissue halo around calcification, and small radiolucent areas in calcification.

size were noted, the largest one having caseous necrosis centrally and extensive old calcification. In the peripheral zone there was fibrosis and a dense cellular infiltrate composed primarily of what appeared to be large macrophages. Occasional giant cells of the Langhan's type were seen. Numerous satellite lesions were adjacent to the principal one, which in general showed complete healing and calcification centrally with dense collagen peripherally. A periodic acid Schiff stain was applied and what

appeared to be large histiocytes and macrophages contained Schiff positive material. In clusters of histiocytes adjacent to the large lesion were identifiable discrete round organisms filling the cytoplasm of the cells and having the morphologic characteristics of *Histoplasma capsulatum*.

The postoperative course was uneventful and at the last follow-up visit in October of 1955 the patient was in good health. An x-ray film of the chest showed only the scarring to be expected after thoracotomy.

CASE 2. The patient, a 26-year-old white married woman, was observed for the first time on August 6, 1953, because of a report of abnormality in a routine minifilm. A 14″ x 17″ x-ray film of the chest (Figure 3) was taken and a mass was seen in the region of the left hilum. The patient was completely asymptomatic. There was no history of recent cough, pain in the chest, hemoptysis, night sweats or loss of weight.

The patient was born in Wyoming and was reared and lived in Northern California except for three years she spent in Nashville, Tennessee, from 1948 to 1950. A minifilm taken in Nashville in 1950 was also reported as abnormal and for that reason a large film was taken at that time but the patient was not examined nor was any follow-up study suggested.

Between 1944 and 1948, the patient had had several episodes of dyspnea and wheezing on exertion which were diagnosed as asthma but no treatment was given. During the stay in Nashville, the patient had had two short attacks of "laryngitis." In 1952 she had a short episode of "pleurisy" on the left side which was not associated with fever and which resolved rapidly after the application of local heat.

The patient's father had arrested pulmonary tuberculosis and a maternal aunt had died of pulmonary tuberculosis in 1918.

The patient was well developed and well nourished and did not appear ill. The temperature was 98.6° F. The pulse rate was 80 and the rhythm regular. The blood pressure was 120/80 mm. of mercury. Body weight was 143 pounds and the patient was 5 feet 9½ inches tall. The trachea was midline. A small, soft, freely movable, nontender node was palpable in the left axilla. No abnormalities were noted upon examination of the heart and lungs. The liver and spleen were not palpable.

Erythrocytes numbered 4,070,000 per cu. mm. of blood and the hemoglobin content was 13.0 gm. per 100 cc. Leukocytes numbered 10,300 per cu. mm. and the differential was within normal limits. The erythrocyte sedimentation rate was 15 mm. in one hour (Wintrobe). The urine was normal. A serologic test for syphilis was negative. Total serum protein was 7.2 gm. per 100 ml. with a normal albumin-globulin ratio. X-rays of the hands and feet revealed no evidence of osseous change to suggest the presence of sarcoidosis. The x-ray film of the chest which had been taken in Nashville three years earlier was obtained and by comparison it was observed there had been no essential change in the left hilar mass in the interim.

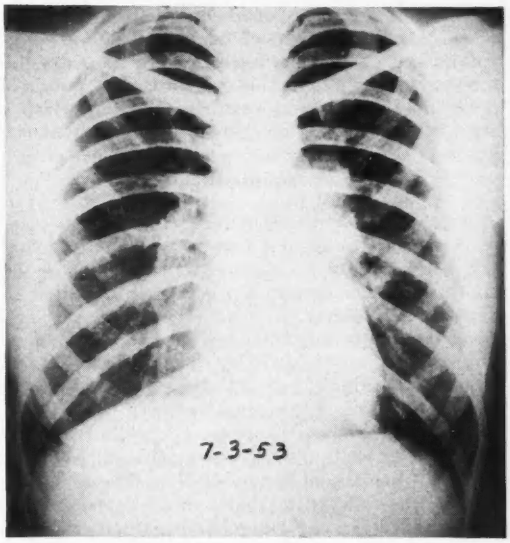

Figure 3 (Case 2).—Mass in region of left hilum.

Results of skin tests were as follows: Purified protein derivative No. 1, negative; purified protein derivative No. 2, slightly positive; coccidioidin 1:100, negative; histoplasmin 1:1000, very strongly positive.

Bronchoscopic examination was done and the bronchial tree appeared normal. A left supraclavicular fat pad biopsy was performed and a lymph node 1 cm. in size was obtained for section. Both the routine hematoxylin and eosin stain and the periodic acid Schiff stain were used for microscopic studies and no evidence of disease was observed.

Several specimens of serum were sent to Dr. Samuel Salvin at the National Microbiological Institute in Hamilton, Montana, for examination for antibodies against *Histoplasma capsulatum*. In September, 1953, Dr. Salvin reported complement-fixing antibodies in a titer of 1:32 with the whole cells of the yeast phase as antigen. At that time, the serum also showed a trace of precipitins. In October, 1953, the serum again showed a positive complement-fixation in a dilution of 1:32, as well as a trace of precipitins. No fixation of complement occurred in the presence of antigens of *Blastomyces dermatitidis* or *Coccidioides immitis*. In January of 1954 the complement-fixation test was positive in a dilution of 1:8 and no precipitins were detectable. In March, 1954, results of complement-fixation and precipitin tests were negative. The last test of serum was in April, 1955, and again there was positive complement-fixation in a dilution of 1:8; no precipitins were detectable.

During this period of changing titer of antibody levels, the clinical condition of the patient did not change significantly except that she became pregnant

and had a normal spontaneous delivery in July, 1954. Serial x-ray films of the chest taken at intervals of six months continued to show no change in the left hilar mass. A histoplasmin skin test in a dilution of 1:1000 was performed on the patient's child in July, 1955, and there was no reaction.

DISCUSSION

There is much in the histories of both the cases here reported to suggest that in both the infection originated outside California, in one either in the South Pacific or eastern Texas, and in the other in Tennessee. However, in both cases there was evidence to suggest that active infection may have been present. In Case 1, definitive operation was indicated, and in Case 2 careful observation. In Case 1 the identification of the causative factor in the lesion obviated a prolonged course of antituberculous treatment as well as the problem of examining the family of the patient for tuberculous infection. The patient was relieved of the stigma of tuberculosis. In Case 2 it was of great importance to rule out tuberculosis, sarcoidosis and malignant disease, and this was accomplished by the identification of the etiological agent.

It is generally assumed that the histoplasmin skin test has the same significance in relation to histoplasmosis as the tuberculin skin test has to tuberculosis and as the coccidioidin skin test has to coccidioidomycosis. A positive reaction to histoplasmin skin test almost always means past or present infection with *H. capsulatum*. In retesting of thousands of persons who were nonreactors to histoplasmin, it has been shown that sensitization with histoplasmin does not bring about conversion from a negative to a positive intradermal reaction. It has also been shown that false positive reaction to histoplasmin skin tests can be obtained in the presence of infections with *Blastomyces dermatitidis*, *Coccidioides immitis* and *Candida albicans*, and are evidently due to cross-sensitivity with fungi. Similarly, it is known that the sensitivity to histoplasmin is occasionally depressed by the acute phase of the disease, by fever and by old age and that changes in skin sensitivity can occur during the illness even in verified cases.

Serological tests, also, may be of help in confirming a diagnosis of histoplasmosis. However, the results of these tests are not infallible and there are very few laboratories that have accumulated sufficient experience with the tests. In Puckett's[8] series of 22 proved cases of pulmonary histoplasmosis, complement-fixation studies were done in 12 cases and in five the results were negative. The highest titer reported in the seven cases with positive reaction was 1:20. It is important for a clinician to know that the complement-fixation test reaction may be negative during the acute phase of the disease since antibody production may be too low to be measured by present techniques. If serious consideration is being given to the diagnosis of histoplasmosis, repeated serological studies should be performed before a negative report is considered significant. It is generally felt to be true, although exceptions have been reported, that a rising titer indicates dissemination and a falling titer indicates clinical improvement of the disease.[1,9]

SUMMARY

Two cases of pulmonary histoplasmosis have been described. The importance of identifying the etiological agent in cases of intrathoracic granulomas is emphasized.

120 North Fourth Street, San Jose 12 (Kaufman).
300 Homer Avenue, Palo Alto (Bryner).

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Bran as a Precipitating Factor in Small Bowel Obstruction

A. J. GHERINI, *M.D.*, JOHN J. FIRPO, *M.D.*, and P. STALTERI, *M.D.*, San Francisco

INTRALUMINAL BOWEL OBSTRUCTIONS are not particularly uncommon. Numerous foods in daily use have been found causing obstruction. However, not since 1940 has there been mention in the literature of bran as a cause. In that year Fantus and Kapstein[2] made a thorough review of the literature and could find reports of only four cases of bowel ob-

From the Department of General Surgery, St. Mary's Hospital, San Francisco.

Submitted May 21, 1956.

struction which had definitely been caused by bran. In three of these cases the obstruction was preceded by gross intestinal disease. The fourth case was not sufficiently well described to permit analysis as to its nature, but a predisposing cause was probably present: The patient had previously had two abdominal operations. Fantus and Kapstein came to the conclusion that bran was not likely to produce obstruction unless an organic predisposing cause was present, and urged that its use should be definitely contraindicated in the presence of intestinal ulceration, stenosis or adhesions. The first case of obstruction definitely ascribed to bran was reported by Butzke, Barber, Boswell and Drewitt[1] in 1928. The obstruction was in the sigmoid colon and perforation of the bowel above it caused fatal generalized peritonitis. As a predisposing disease the patient had amebic ulceration.

The following case fits in well with the conclusions of Fantus and Kapstein.

REPORT OF A CASE

A 54-year-old white rigger was admitted to St. Mary's Hospital November 24, 1954, with the chief complaint of severe cramping pain for three days in the left lower quadrant of the abdomen. About three days before admission the patient had eaten at breakfast about two cupfuls of bran* with milk. Since that time the patient had been unable to retain food in the stomach and had vomited many times. Two days before admission he had taken an enema and although a fair amount of fecal material was defecated, pain was not relieved. On the evening of the day before admittance to hospital he had a spontaneous bowel movement but the amount of fecal material passed was described as scant, and gas had not been passed per rectum since that time.

Thirty-seven years previously the patient had had a lower abdominal operation. He did not know why the operation had been done or what, if any, organs had been removed. He remembered only that at that time he had had severe abdominal pain. Since about 1928, the patient had attacks similar to those described in the present illness, but never so severe, and they had subsided spontaneously.

Upon physical examination the patient was observed to be anxious and thin and in obvious abdominal distress. The rectal temperature was 100.0° F., the pulse rate 88, respirations 16 per minute. The blood pressure was 150/90 mm. of mercury. The tongue was moist. Moderate distention and generalized tenderness of the abdomen were noted, but there was no definite rebound tenderness. There was a 4 cm. subumbilical scar, well healed. Bowel sounds were hyperactive and high pitched. There were no palpable masses, and no evidence of free fluid or herniation. No abnormalities were observed upon rectal examination.

The hemoglobin content of the blood was 14.2 gm. per 100 cc. and erythrocytes numbered 4.95 million per cu. mm. Leukocytes numbered 11,700 per cu. mm.—67 per cent polymorphonuclear cells (segmented 55 per cent and nonsegmented 12 per cent), 1 per cent eosinophils and 32 per cent lymphocytes. No abnormalities were noted in the urine.

Flat, upright, and lateral films of the abdomen showed a collection of gas-filled loops in the left upper quadrant. There was very little gas in the colon although some fecal material was seen in the rectum. Fluid levels were noted within the loops of the small bowel. There was no evidence of free air in the peritoneal cavity.

TREATMENT

The patient was given 1,000 cc. of 5 per cent dextrose in saline solution intravenously. A Levin tube was passed and continuous nasogastric suction was started. At operation a right paramedian paraumbilical incision 18 cm. long was made. Entrance into and orientation within the abdomen were exceedingly difficult because of dense adhesions of bowel to the peritoneum. Eventually, a mass 7.5 cm. x 15 cm. was located. It appeared at first to be retroperitoneal. In the course of manipulation, the mass ruptured and thereupon it was seen to be small bowel. The mass contained dried fiber-like material that looked like dry manure. Just distal to the mass, an adhesive band stretched across the bowel. This band was cut and the dry manure-like material was removed proximally and distally as carefully as possible. The tear in the bowel was closed with a Connell suture of 00 chromic catgut on an atraumatic needle, and the serosa was closed with interrupted Lembert sutures of 60 cotton. Both were done in a transverse manner. There was no gangrenous bowel. The abdominal wall was then closed in layers and reinforced with retention sutures of No. 28 steel alloy wires. A Penrose drain was placed in the inferior end of the incision into the peritoneal cavity before closure was carried out.

After operation, continuous nasogastric suction was maintained and appropriate administration of fluids and antimicrobial drugs was carried out. The Levin tube was removed on the third postoperative day and the drain on the sixth postoperative day. Except for a flare-up of acute prostatitis on the tenth postoperative day the patient made uneventful recovery.

By studies in the pathology laboratory it was determined that the material removed at the time of operation was desiccated bran. Presumably, from the appearance of the patient's peritoneal cavity at operation he had had peritonitis at the time of the first abdominal operation.

2200 Hayes Street, San Francisco 17 (Gherini).

*All Bran (Kellogg).

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Perforated Gastric Ulcer Complicating Prednisone Therapy

W. C. OVERMILLER, M.D., and
W. H. STOVER, M.D., Auburn

PEPTIC ULCER has been reported as a complication of prednisone therapy,[1] as has one case of perforating duodenal ulcer.[2] So far as could be determined there has been no previously published report of perforated gastric ulcer in a patient receiving prednisone therapy.

REPORT OF A CASE

The patient, a woman 46 years of age, had been receiving steroid therapy for rheumatoid arthritis, except for brief intervals, since 1950. At first cortisone was used and while taking it she had progressed from a state of enforced inactivity to one of active full time work as a waitress. There was no evidence of side effects other than a rounding of the face. Hydrocortisone became available and the patient was changed to it in 1954. On May 14, 1955, therapy was begun with prednisone (Meticorten) and 18 mg. a day was required for control of arthritic symptoms. Shortly before 2 o'clock in the afternoon of December 30, 1955, the patient walked into the authors' office, about 30 minutes after noting the onset of generalized abdominal distress described as "gas." She had experienced, with the onset of abdominal symptoms, a brief period of faintness. She said she had had no previous gastrointestinal symptoms other than occasional epigastric burning that was readily relieved by taking a glass of milk or a little soda bicarbonate. This symptom had never been frequent or severe enough, in the patient's opinion, to warrant mentioning it to a physician.

Upon examination the patient was observed to be in moderate distress. She had loosened her dress at the waist because she felt "too full of gas" to be comfortable with anything constricting about her. She was afebrile. The blood pressure was at its usual level of 140/80 mm. of mercury. The pulse rate was 86. Characteristic fusiform rheumatoid swelling of the fingers was noted, and there was some flexion contracture with restriction of motion of the fingers, wrists, elbows and ankles. There was also a suggestion of facial rounding. The abdomen was only minimally distended—not as much as might be expected from the patient's complaint of being so full of gas she could hardly breathe. Peristalsis was slightly hyperactive. There was moderate bilateral lower abdominal tenderness on palpation.

The patient was not permitted to take anything by mouth. Codeine was given parenterally to relieve discomfort. Heat was applied to the abdomen. In spite of these measures, by 8 p.m. the patient had become more uncomfortable. Generalized muscular rigidity of the abdomen was noted and the rebound phenomenon was present. The epigastric region was acutely tender on palpation. Bowel sounds were active. The temperature was 98° F., the pulse rate 80, and respiration 28 per minute.

Submitted June 4, 1956.

The hemoglobin content was 11.4 gm. per 100 cc. of blood. Leukocytes numbered 21,500 per cu. mm. —92 per cent neutrophils and 8 per cent lymphocytes. Serum amylase was 128 units. An x-ray film of the abdomen taken with the patient standing showed free air under both leaves of the diaphragm. The diagnosis was ruptured viscus, probably due to peptic ulcer.

At laparotomy a perforation 4 mm. in diameter was observed in the prepyloric portion of the anterior wall of the stomach along the lesser curvature. A biopsy specimen was taken from the edge of the ulcer, and the perforation was closed without difficulty. The abdomen was closed without drainage. Steroid therapy during and after operation consisted of cortisone intravenously and intramuscularly, with gradual reduction of dosage. Recovery was uneventful and the patient was discharged from the hospital the eighth postoperative day on a rigid ulcer regimen.

The frequency of development of peptic ulcer during prednisone therapy is not known. Fentress and coworkers[2] reported three patients with peptic ulcer in a group of 18 receiving prednisone therapy. Bollet and coworkers[1] reported the same incidence in a group of the same number of prednisone-treated patients. For the combined group of 36 treated patients the incidence of peptic ulcer was 17 per cent.

Prednisone therapy masked symptoms up to the time of perforation, and even then made diagnosis more difficult. The three patients with peptic ulcer in the series reported upon by Bollet were all without referable symptoms. Fentress and coworkers, in the case they reported, had not recognized the presence of duodenal ulcer, and it was at least 12 hours after perforation before the clinical findings were such that they suspected ruptured viscus. In the present case also, the presence of ulcer was not suspected and the diagnosis of perforation was similarly delayed. Since the usual symptoms and findings of perforation may be obscured by the pharmacologic action of corticoids, it would appear that earlier recognition of this serious complication will require a heightened index of suspicion of peptic ulcer and its complications and a search for intraperitoneal air when unusual abdominal symptoms develop during prednisone therapy.

A case is reported in which perforation of a gastric ulcer, which was not known to be present, occurred in a patient receiving long-term prednisone therapy for rheumatoid arthritis. The relatively frequent development of asymptomatic peptic ulcer in patients receiving corticoids is pointed out, and the masking of early symptoms of perforation is emphasized.

124 Hillmont Avenue, Auburn (Overmiller).

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Clonorchiasis of the Biliary Tract

A Report of Two Cases

GEORGE Q. LEE, *M.D.*, Oakland, and
ALBERT E. HIRST, JR., *M.D.*, Los Angeles

CLONORCHIASIS or Chinese liver fluke infestation of the biliary tract occurs as an endemic disease in Japan, Korea, China and Indo-China but has rarely been reported within the continental limits of the United States. Occasional cases have been reported in European and Far Eastern medical journals.[1,3,4]

Stitt and co-workers[5] reported that liver fluke infestation had been reported in fewer than 50 cases in Europe, and in only two had a fluke been surgically removed from the common bile duct. Infestation with this parasite as shown by stool examination has been recorded in Chinese inhabitants of the United States, Cuba and India, and in native Hawaiians.

Increasing frequency of infestation with *Clonorchis sinensis* in persons in this country may be expected due to the exposure of American personnel, both civilian and military, to the Orient. The disease is acquired by the ingestion of insufficiently cooked infected fish. Early recognition and treatment is important to prevent the late complications of the disease.

Reports of two cases in which the symptoms complained of were those of chronic biliary tract disease are presented herewith. In both cases, typical ova were found in the stool before operation. In one, a mature fluke was found in the common bile duct at the time of operation; in the other, ova were noted in a biopsy specimen of liver.

REPORTS OF CASES

CASE 1. A Chinese male, aged 56 years, born in China, emigrated to the United States 30 years previously. He had had symptoms of gallbladder disease for three years. Nonfunctioning of the gallbladder was demonstrated by x-ray examination. There was no history of jaundice.

The hemoglobin content of the blood was 16.5 gm. per 100 cc. Erythrocytes numbered 5,560,000 per cu. mm. and leukocytes 6,500—neutrophils 61 per cent, lymphocytes 26 per cent, and eosinophils 5.5 per cent. Results of urinalysis were within normal limits. Ova typical of *Clonorchis sinensis* were observed in a fecal specimen.

At operation the gallbladder was observed to be thick-walled and filled with numerous calculi. The cystic duct was thin-walled and slightly dilated. The liver appeared grossly normal. No specimen for biopsy was taken. No stones were found in the common duct but a small, flat, black, leaf-shaped object was scooped out from the lumen. A routine cholecystectomy was performed and a T-tube was inserted into the common duct. The patient made an uneventful recovery and was sent home with prescription of enteric-coated gentian violet.

The pathologist's report described the specimen from the common duct as a leaf-shaped fluke measuring 6 x 3 x less than 1 mm. Eggs were visible within the fluke on microscopic examination, and eggs were also found in a subsequent examination of bile obtained from the T-tube. Miracidia were released by immersing the ova in a solution of methylene blue and borax. The liberated miracidia were observed to swim about vigorously. Microscopically observed, the gallbladder wall was seen to be thickened by fibrosis and round cell infiltration, but the lining epithelium was intact.

CASE 2. The patient was a Chinese male 43 years of age who had been born in China but had lived in the United States for 20 years. He had had symptoms of gallbladder disease for seven years, with a recent episode of jaundice suggestive of extrahepatic obstruction due to stones.

The hemoglobin content was 18.0 gm. per 100 cc. of blood. Erythrocytes numbered 6 million per cu. mm. and leukocytes 9,400 per cu. mm.—neutrophils 44 per cent, lymphocytes 18 per cent, basophils 2 per cent, and eosinophils 35 per cent. Upon urinalysis a four plus reaction for bile was noted but no reaction for urobilinogen. The icterus index was 151 units, cephalin flocculation 3 plus, and alkaline phosphatase 8.2 King-Armstrong units. A plain film of the abdomen showed mild ileus. Ova typical of *Clonorchis sinensis* were observed in a specimen of stool.

A preoperative diagnosis of "extra hepatic obstructive jaundice probably due to common duct stones" was made and surgical exploration was carried out. The gallbladder was thick-walled and full of calculi. Four calculi were removed from a dilated common duct, and a fifth stone, impacted in the ampulla of Vater, was removed by duodenotomy. Cholecystectomy was done and a T-tube was inserted into the common bile duct. Upon examination of a specimen of liver (Figure 1) connective tissue proliferation and infiltration of eosinophils around the bile ducts was noted. There was necrosis of the lining epithelium in the larger ducts, and lumina were filled with pink staining debris and operculated ova of *Clonorchis sinensis*. There was fibrous thickening of the gallbladder wall consistent with chronic cholecystitis. The calculi were carefully sectioned and examined and no ova were observed.

DISCUSSION

Clonorchiasis, better known as Chinese liver fluke infestation, is caused by a fluke, *Clonorchis sinensis*, which has an affinity for the biliary tract. Infestation with this fluke is acquired by ingestion of insufficiently cooked infected fish. The parasite is a slender, leaf-shaped trematode 10 to 25 mm. in length and 3 to 5 mm. wide. The operculated ova of *Clonorchis sinensis* contains fully-developed miracidia

From the Department of Surgery, Stanford University Medical School (Lee), Department of Pathology of the College of Medical Evangelists and the Los Angeles County General Hospital (Hirst).

Submitted May 18, 1956.

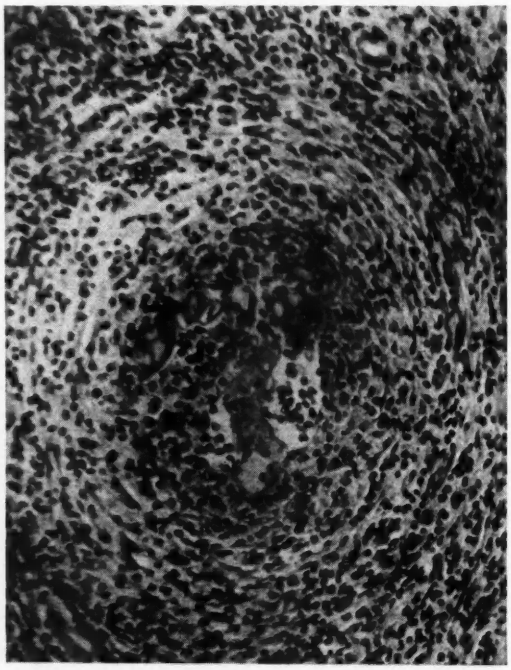

Figure 1.—Arrows point to ova in bile duct of liver. Note surrounding fibrosis and inflammatory cell infiltration, predominantly eosinophils (high power magnification).

and are said to be among the smallest ova passed by man. The eggs laid in the bile passages by the adult are discharged into the duodenum and pass into the stools. To complete the cycle, the ova must reach fresh water where they are ingested by certain species of snails to undergo a metamorphosis into a free swimming form known as cercariae. Cercariae in turn penetrate fresh water fish, and develop over a period of several weeks into cysts which are infectious to man. When insufficiently cooked infected fish are ingested by man, the wall of the cyst is broken down by the gastric juice and the organism that is liberated then migrates to the radicles of the biliary tree by ascending the common bile duct. Presence of adult flukes in the biliary tree accounts for the subsequent proliferation of the biliary epithelium, fibrosis and, rarely, cirrhosis of the liver.

Whether or not cholecystitis and cholelithiasis result secondarily from the parasitic infection in the cases here reported is not known. The possibility was considered that the parasite might have acted as a nidus for the stone formation but no evidence to support the supposition was found on careful sectioning of the calculi. It is assumed, therefore, that cholecystitis and cholelithiasis were incidental in the two cases reported. On the other hand, no evidence exists to deny the possibility that the toxin liberated by the parasite may not be one of the exciting factors to account for the disease in the gallbladder. No references are available in the literature as to the relationship between diseases of the gallbladder and infestation with *Clonorchis sinensis.*

In the cases presented, one of the patients had not been in China for 30 years and the other for 20 years. It seems doubtful that the liver fluke can survive this length of time without reinfection. The history suggests that reinfection may have occurred by the ingestion of infected fish from China in the second case, but the history is incomplete in the first case.

Suspicion of clonorchiasis should be aroused in the case of a patient, especially an Oriental, with a history of ingestion of raw fish and symptoms of gallbladder disease with or without jaundice. The finding of ova of *Clonorchis sinensis* in the stools is diagnostic of infestation. An increase in the eosinophil cells in the blood is usual. The diagnosis may be confirmed by recognition of adult flukes in the biliary tract at the time of operation or by biopsy of a specimen of liver.

In treatment, gentian violet in enteric-coated tablets is the drug of choice.[5] It is said to be curative in early infestations and may be beneficial in advanced cases.

SUMMARY

Two cases of clonorchiasis of the biliary tract in patients living in the United States are reported. Both patients had symptoms suggestive of chronic cholecystitis with cholelithiasis. The diagnosis was confirmed by finding characteristic ova in the stools in both cases and by observing a mature fluke in the biliary tree in one case and by biopsy of the liver in the other.

2968 Telegraph Avenue, Oakland 9 (Lee).

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California MEDICINE

For information on preparation of manuscript, see advertising page 2

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EDITORIAL

Cancer Quackery

FOR THE SECOND TIME in eight months a federal court has determined that the "Hoxsey cancer treatment" is worthless and, in so doing, has focused attention on the many variations of cancer treatment foisted on the public throughout the country.

Simultaneously, Mr. George P. Larrick, Commissioner of Food & Drugs, has again taken off the gloves and landed a solid — and public — punch against this particular form of therapy; he labels it as "worthless" and decries the fact that "consumers" are being "deceived by the false claims for the Hoxsey liquid medicines and pills."

Mr. Larrick's current statement follows one issued by him earlier in 1956, when—the first such action in the history of the U. S. Food & Drug Administration—he lashed out at the quackery of the Hoxsey treatments.

His words fall on sympathetic ears in California, where for some years the Cancer Commission of the California Medical Association has waged an unrelenting war on the many forms of cancer therapy which are unproved and without scientific backing but which, apparently, are a fine source of income for their promoters.

In the past few years the Cancer Commission has released public reports on four purported cancer cures or treatments that have been found to lack any scientific value. The policy of the Cancer Commission has consistently been to offer its services to the promoters of cancer therapy of any type. With the cooperation of the promoter, the Commission stands ready to subject any substance to an objective scientific testing in a university or a research hospital. If a so-called cancer cure can be shown by this kind of investigation to have some real worth, the Cancer Commission would be the first body to want to know about it and to further the use of the treatment. It is interesting to note that the promoters of these "cures" are usually unwilling to release any of their material for such objective testing.

It is also interesting to observe that these promotors owe their practices to word-of-mouth advertising that crosses state lines and brings in patients from all parts of the country. Possibly on the theory that a prophet is without honor in his own house, the cancer miracle man in Texas draws patients from California and his California counterparts count on Texans.

The Hoxsey case bears out this phenomenon. Hoxsey has operated in Texas for some 30 years and has handled patients from all parts of the nation. His treatment has been advertised to the point of notoriety and physicians in all areas know of the worthless character of it. Despite this, and despite the blunt condemnation which has been heaped on the Hoxsey shoulders, cancer victims or those who fear they have the disease continue to journey to his Dallas headquarters for a series of treatments.

To the everlasting credit of the Food & Drug Administration, federal officers have long sought a way to put a stop to this patent quackery. Under the terms of a U. S. Supreme Court decision in 1948, the F.D.A. was finally enabled to file an injunction suit in 1950 and to receive a decree from the federal court in Dallas in 1953. At about that time Mr. Hoxsey branched out with a second "clinic" in Portage, Pennsylvania. This one was so widely publicized that it eventually rated half a dozen photographic pages in *Life* magazine.

Still more recently, Hoxsey has been rumored as preparing to open a third "clinic" in California, possibly in Los Angeles, possibly in Santa Barbara. To date this has not materialized but the rumor persists and the possibility appears ever present.

In his new blast at the Hoxsey system, Commissioner Larrick stated that a new injunction will be sought to prevent the interstate shipment of Hox-

sey's pills. The half million pills ordered destroyed by a federal judge in Pittsburgh can easily be replaced. Mr. Larrick said that his department intends to "use every legal means within our power to protect consumers from being victimized by this worthless treatment." He also called attention to the fact that government evidence in the recent Hoxsey case proved that many of the "cured cases" presented by Hoxsey were people "who either did not have cancer, or who were adequately treated before they went to the Hoxsey clinic, or who died of cancer after they had been treated there." This is typical of many advertised forms of therapy for many things—cancer has no patent on this promotional technique.

The C.M.A. Cancer Commission has long since adopted the same attitude as the Federal Food & Drug Commissioner, namely, to use all legal means to protect the public against cancer quackery. Its offices are always available for the scientific and objective testing of proposed therapeutic procedures. Its current recommendations for cancer treatment are those which have had universal scientific acceptance—surgical operation or irradiation or both.

When further or better forms of therapy are proved, the Cancer Commission will be in the forefront in urging their use. Meanwhile, the war on quackery in this highly emotional and susceptible field of disease cannot be allowed to lag.

Editorial Comment . . .

Fixed Antibiotic Combinations

CURRENTLY the medical profession is being deluged with an unprecedented amount of advertising for preparations containing combinations of antimicrobial drugs. According to the publicity such preparations are "indicated for most common infections" or "dependably effective," thus relieving the physicians of responsibility for attempting a specific etiologic diagnosis; they are "generally well tolerated" or have "a new maximum of safety and toleration," thus reassuring the physician that he will not cause the patient discomfort from side effects; they "prevent the emergence of microbial resistance" and give "superior control of the changing microbial population," making the physician feel that he is protecting his patient by every known means. Often the advertisement mentions the "synergism" attributed to the particular drug combination, usually without defining the term or its meaning, thus attracting the physician's hope for increased potency.

This flood of preparations containing mixtures of antimicrobial drugs probably will significantly increase the total consumption of antibiotics. Concomitantly it may greatly increase the problems resulting from the large scale misuse of antibiotics and diminish the usefulness of these drugs. The undersigned therefore believe it to be their duty to call to the attention of physicians some facts and problems attendant upon this promotional pressure for the use of combinations of antimicrobial drugs.

In a large majority of common ailments, particularly most respiratory infections, antibiotics are not indicated. In infections caused by a demonstrable specific bacterial agent a single antimicrobial drug is usually the proper choice. Combinations of antibiotics could be employed logically only in the following situations:

1. Mixed bacterial infections—as in wounds, for example.

2. Clinical situations where the rapid emergence of bacteria resistant to one drug may impair chances for cure. The addition of a second drug sometimes delays the emergence of resistance. This effect has been demonstrated in tuberculosis but in other infections the evidence for its occurrence is questionable. However, in staphylococcus infections streptomycin, erythromycin, or novobiocin should usually not be used singly because resistance is likely to emerge rapidly.

3. In some infections the simultaneous use of two drugs gives an effect not obtainable by either drug alone. Such an instance is endocarditis due to *Streptococcus fecalis* (Enterococcus), where the combined effect of penicillin and streptomycin is essential for cure. Such situations are rare. No fixed drug combination regularly results in such a desirable

combined effect. On the contrary the combined action of any drug pair is unpredictable and may apply only to a single strain of bacteria. Thus it is neither accurate nor informative to talk of a "synergistic" drug pair, without specifying a given organism.

The frequent administration of combinations of antibiotics is to be discouraged because:

1. None of the currently advertised combinations have been proved by laboratory or clinical study to be more effective than one of the components.

2. The fixed ratio of drugs is unlikely to be suited to the needs of a given situation even if the individual constituents are appropriate.

3. Sensitization, hypersensitivity reactions, and other toxic side effects occur with each drug and are more frequent when several agents are employed simultaneously.

4. The claim is not justified that drug combinations will prevent the emergence of drug resistant bacteria. At best the combination will only delay this process, permitting a more prolonged chemotherapeutic effectiveness.

5. Available information demonstrates that the widespread use of combinations in hospitals eventually leads to an *increase* in the number of strains of bacteria resistant to *both* components of the mixture.

6. The advertisements of most of the recently introduced combinations are based upon dubious testimonials rather than facts established by experienced clinical investigators.

Physicians are urged to consider the risks and disadvantages of prescribing fixed drug combinations and to retain to themselves the prerogative of free choice of drugs for their patients based upon sound evidence and suited to the needs of the individual case.

HENRY D. BRAINERD
ERNEST JAWETZ
LOWELL A. RANTZ

Letters to the Editor . . .

In your CALIFORNIA MEDICINE, page 278, Oct. 1956, appears a notice of a Surgical Refresher Course, dedicated to the memory of our son, the late Dr. Francis Traill Hodges, under the sponsorship of the San Francisco Academy of General Practice, to be given by the Surgical Service of the VA Hospital, at Ft. Miley, San Francisco, by members of the Departments of Surgery, Stanford University, and the University of California School of Medicine, October 23 to November 27, 1956.

As we are unable to personally contact the members of these various groups, might it not be possible to insert some suitable note of thanks—if consistent with your editorial policy—expressing our appreciation and gratitude to all of Frank's friends, who made this fine, educational undertaking and memorial possible?

Sincerely,
FLETCHER HODGES, M.D.

Indianapolis, Indiana.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 422nd Meeting of the Council, Los Angeles, Ambassador Hotel, November 10, 1956.

The meeting was called to order by Chairman Lum in the Colonial Room of the Ambassador Hotel, Los Angeles, on Saturday, November 10, 1956, at 9:30 a.m.

Roll Call:

Present were President Charnock, President-Elect MacDonald, Vice-Speaker O'Neill, Secretary Daniels, and Councilors West, Wheeler, Wadsworth, Pearman, Harrington, Sherman, Lum, Bostick, Teall, Reynolds, Varden, Heron and Rosenow.

Absent for cause, Speaker Doyle, Editor Wilbur and Councilors Loos, McPharlin, Kirchner and Carey.

A quorum present and acting.

Present by invitation were members of the Board of Trustees of California Physicians' Service, including Rt. Rev. Msgr. T. J. O'Dwyer, Doctors Leon O. Desimone, T. Newton Foster, Bert Halter and Dave Dozier and Messrs. Thomas Hadfield and Robert L. Hornby.

Also present by invitation were Messrs. Hunton, Thomas, Clancy and Gillette of C.M.A. staff; legal counsel Howard Hassard; Messrs. Ben H. Read and Eugene Salisbury of the Public Health League of California; Rollen Waterson, consultant; Doctors A. E. Larsen and William Gardenier and Messrs. Etchel Paolini, Richard Lyon, Wilson Walberg and K. L. Hamman and Miss Shirley Harcourt of CPS staff; Doctors Joseph F. Sadusk, Jr., Francis J. Cox, Alfred A. Auerback, John Rumsey and Justin J. Stein; Richard Blum, Ph.D.; and county society executive secretaries Scheuber and Dockterman of Alameda-Contra Costa; Jensen of Fresno, Geisert of Kern, Marvin of Riverside, Foster of Sacramento, Donmyer of San Bernardino, Nute of San Diego, Neick of San Francisco, Thompson of San Joaquin, Wood of San Mateo, Donovan of Santa Clara and Devere of Stanislaus, and legal counsel Fred O. Field of the Los Angeles County Medical Association.

1. *Minutes for Approval:*

(a) On motion duly made and seconded, minutes of the 421st Council meeting, held September 30, 1956, were approved.

(b) On motion duly made and seconded, actions of the Executive Committee, taken in telephone conferences, in effecting a settlement of a dispute among blood banks, were approved and confirmed.

2. *Membership:*

(a) On motion duly made and seconded, a report of membership as of November 7, 1956, was received and ordered filed.

(b) On motion duly made and seconded, 34 members who had become delinquent through nonpayment of dues and had subsequently made such payment, were voted reinstatement as active members.

(c) On motion duly made and seconded in each instance, eight (8) applicants were voted Retired Membership. These were: Richard O. Bullis, Charles Coghlan, Joseph E. Jensen, Edmond M. Lazard, John P. Mortensen, Los Angeles County; L. J. Langlois, San Diego County; Wm. Otis Callaway, San Mateo County; David B. Williams, Stanislaus County.

(d) On motion duly made and seconded in each instance, five (5) applicants were voted Associate

DONALD A. CHARNOCK, M.D. . . . . President
FRANK A. MacDONALD, M.D. . . . . President-Elect
JAMES C. DOYLE, M.D. . . . . Speaker
J. NORMAN O'NEILL, M.D. . . . . Vice-Speaker
DONALD D. LUM, M.D. . . . . Council Chairman
ALBERT C. DANIELS, M.D. . . . . Secretary-Treasurer
IVAN C. HERON, M.D. . Chairman, Executive Committee
DWIGHT L. WILBUR, M.D. . . . . Editor
JOHN HUNTON . . . . . Executive Secretary
General Office, 450 Sutter Street, San Francisco 8
ED CLANCY . . . . Director of Public Relations
Southern California Office:
417 South Hill Street, Los Angeles 13 • Phone MAdison 6-0683

Membership. These were: Beverly G. Wagner, Sacramento County; Harry L. Bramwell, San Joaquin County; Cyrus Pachter, San Diego County; John F. Fitzgerald, John Cameron Wrye, San Luis Obispo County.

(e) On motion duly made and seconded, reductions of dues were voted for four applicants.

3. *Financial:*

A report of bank balances as of November 7, 1956, was presented and ordered filed.

4. *Medical Care for Military Dependents:*

(a) Doctor John M. Rumsey, Mr. Richard Lyon of California Physicians' Service and legal counsel Hassard reported on and discussed a contract which had been negotiated with the Department of Defense by the Association and C.P.S., to provide medical, surgical and hospital services for dependents of military personnel in civilian facilities. Under this contract, C.M.A. would agree to encourage physicians to provide their services under an established schedule of fees and C.P.S. would handle all claims and financial services.

On motion duly made and seconded, it was voted to approve the contract and the schedule of fees accompanying it and to authorize the Executive Committee to supervise additional negotiations which may appear advisable.

On motion duly made and seconded, it was voted to place prime emphasis in any renegotiations on this contract on the omission of provision for the services of physicians who make initial examinations and diagnoses of patients whose care is continued under such physicians, in order not to deprive such patients of these services.

(b) On motion duly made and seconded, it was voted to express commendation for General Omar N. Bradley and his committee for adopting a policy, in reviewing veterans' affairs, that the medical care of veterans suffering from nonservice connected disabilities should be a community responsibility rather than one of the Veterans' Administration.

5. *Commission on Medical Services:*

(a) The chairman read a report by Doctor H. Gordon MacLean on a meeting held with representatives of the State Department of Social Welfare and the State Department of Public Health relative to state participation to activate new federal provisions for medical care for the aged, children and other categories of recipients of federal and state assistance. Report was also made on another meeting at which possible legislation was considered as a means of providing state funds to match federal grants for such assistance.

Doctor MacLean's report recommended that the Council approve in principle the provision of medical care for the aged and the indigent and authorize the committee to continue working with state authorities on a program which would place its main stress of medical services in the office or the home.

On motion duly made and seconded, it was voted to endorse the policy of stressing office and home care, to use California Physicians' Service for administrative services and to refer the entire matter to an appropriate committee for early study and report.

(b) On motion duly made and seconded, it was voted to combine the functions and activities of the present Committee on Indigent Care and the Committee on Problems of the Aged.

6. *State Board of Medical Examiners:*

Doctor Justin J. Stein, a member of the State Board of Medical Examiners, gave a statistical report on the licensing of physicians in California, pointing out that many more physicians were licensed each year by reciprocity with other states than through graduation in California schools. He also pointed to the difficulty of attempting to evaluate the educational level of medical schools in foreign countries and expressed the reliance of the board in the present system of requiring foreign medical school graduates to pass a preliminary examination, serve two years of internship and then pass an oral examination prior to being licensed. On motion duly made and seconded, it was voted to approve the maintenance of existing standards of licensure, approval of residencies and related matters.

7. *Committee on Fees:*

(a) Doctor Francis J. Cox reported on the disability sections of the new Social Security Act amendments and pointed out that benefits will be paid, following medical certification, to persons 50 or more years of age found to be permanently and totally disabled.

(b) Doctor Cox also reported on two hearings which have been held by the Industrial Accident Commission on the Association's application for amendments to certain fees and certain instructions in the existing schedule of fees recognized by the Commission. A committee appointed by the Industrial Accident Commission will meet in December for further consideration of the petition and the opposition expressed by representatives of industrial or employer organizations.

8. *Committee on Mental Health:*

(a) Doctor Alfred A. Auerback, chairman of the Committee on Mental Health, reviewed the provisions of legislation proposed by his committee in conjunction with legal counsel and the Committee on Legislation for the provision of community mental health services. On motion duly made and

seconded, it was voted to approve this proposed legislation in principle.

(b) Doctor Auerback also reported on proposals by groups of psychologists to initiate legislation to provide for the registration of clinical psychologists by a new board of psychologists to be established by the State of California. On motion duly made and seconded, it was voted to reaffirm the earlier decisions of the Council in opposition to legislation creating a new board, failing to define scope of practice and failing to protect the patient with organic disease.

(c) Doctor Auerback also reported that he had corresponded with the State Alcoholic Rehabilitation Commission, to oppose two proposals before that body, one of which would eliminate a means test in the giving of rehabilitation therapy incident to hospitalization and the other to concentrate in one hospital the entire $60,000 available for establishing demonstration clinics in general hospitals for alcoholic rehabilitation courses, rather than utilize from four to eight such hospitals, which could serve as controls in such projects. On motion duly made and seconded, it was voted to express official disapproval of these two proposals.

9. *Commission on Professional Welfare:*

Doctor Joseph F. Sadusk, Jr., chairman of the Medical Review and Advisory Board, presented an outline of the board's complete program and answered various questions on specific portions of it. In regard to a publication which had been approved by the board, it was duly moved, seconded and voted that the board and the Committee on Public Relations cooperate with each other prior to issuance of additional publications where public relations problems might be involved.

It was also moved, seconded and voted that the chairmen of all commissions and committees be requested to confer with the Committee on Public Relations prior to issuance of any reports or other material which might include matters of a controversial nature.

10. *Committee on Other Professions:*

A statement intended to clarify existing ambiguity relative to the administration of intravenous medications by registered nurses was presented, representing the joint conclusions of representatives of the Association, the California State Nurses' Association and the California Hospital Association. On motion duly made and seconded, this statement was approved for publication.

11. *Public Relations:*

Mr. Clancy reported on current activities of the public relations department and reviewed a first aid chart which had been prepared for distribution in schools and in the homes of patients.

12. *Commission on Public Health and Public Agencies:*

(a) Doctor West, Chairman of the Commission on Public Health and Public Agencies, reported that the statewide conference of physicians and schools had been held in Fresno with great success.

(b) Doctor West also reported that state and local health authorities were planning a campaign to secure the vaccination of some 6,000,000 California residents up to age 40 with poliomyelitis vaccine. There is agreement between Doctor West's committee and the state authorities that this program should be carried on as far as possible in the offices of physicians. On motion duly made and seconded, it was voted to cooperate with public health authorities in this program.

13. *Commission on Medical Education:*

Doctor Edward C. Rosenow, Jr., chairman of the Commission on Medical Education and chairman of the Committee on Postgraduate Activities, reported that there was confusion in some areas, as to the Council's attitude on permitting technical exhibits at the two-day postgraduate institutes planned for various cities. He recalled the previous Council opinion that such exhibits were not desirable at these institutes but that if they were held, the proceeds should revert to the Association. On motion duly made and seconded, it was voted to reaffirm the previous policy in this respect.

14. *California Physicians' Service:*

Mr. K. L. Hamman, executive vice-president of California Physicians' Service, reported that Doctor T. Eric Reynolds had been appointed a Commissioner of the Blue Shield System, to fill the unexpired term of the late Doctor Francis T. Hodges. Mr. Hamman also reported that a review of the physician resignations from C.P.S. in the past five years showed that 47 per cent of those who had resigned had later applied for readmission as physician members.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 5:40 p.m.

DONALD D. LUM, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

In Memoriam

BONTRAGER, LINNIE PEARL. Died in Visalia, July 9, 1956, aged 32, of cancer. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1952. Licensed in California in 1952. Doctor Bontrager was a member of the Los Angeles County Medical Association.

✤

BRIGGS, ROWLAND SILL. Died August 5, 1955, aged 65. Graduate of Johns Hopkins University School of Medicine, Baltimore, Maryland, 1917. Licensed in California in 1929. Doctor Briggs was a member of the San Francisco Medical Society.

✤

EPPLEY, JAMES EDWARD. Died in San Leandro, November 29, 1956, aged 46, in a fire in his home. Graduate of Marquette University School of Medicine, Milwaukee, Wisconsin, 1936. Licensed in California in 1946. Doctor Eppley was a member of the Alameda-Contra Costa Medical Association.

✤

FITZGIBBON, CLARENCE C. Died in Merced, November 14, 1956, aged 67, of heart disease. Graduate of the Oakland College of Medicine and Surgery, 1912. Licensed in California in 1912. Doctor Fitzgibbon was a member of the Merced County Medical Society.

✤

ITO, PAUL K. Died October 15, 1956, aged 68. Graduate of College of Medical Evangelists, Loma Linda-Los Angeles, 1922. Licensed in California in 1922. Doctor Ito was a member of the Los Angeles County Medical Association.

✤

JOHNSON, ROBERT W. Died in San Fernando, November 8, 1956, aged 57, of cerebrovascular accident. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1925. Licensed in California in 1925. Doctor Johnson was a member of the Los Angeles County Medical Association.

KIDDER, FRANK WOODMAN KINSMAN. Died August 1, 1956, aged 69, of coronary heart disease and arteriosclerosis. Graduate of the College of Physicians and Surgeons, Los Angeles, 1909. Licensed in California in 1909. Doctor Kidder was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✤

MEYER, ALBERT JULIUS. Died in Glendale, November 17, 1956, aged 73, of heart disease. Graduate of the University of Louisville School of Medicine, Kentucky, 1910. Licensed in California in 1931. Doctor Meyer was a member of the Los Angeles County Medical Association.

✤

MORRISON, LEWIS F. Died in San Francisco, November 10, 1956, aged 57, of heart disease. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1926. Licensed in California in 1926. Doctor Morrison was a member of the San Francisco Medical Society.

✤

STEALY, CLAIR L. Died in San Diego, November 14, 1956, aged 66, of rupture of the right wall of the aorta. Graduate of the University of Michigan Medical School, Ann Arbor, 1916. Licensed in California in 1919. Doctor Stealy was a member of the San Diego County Medical Society.

✤

WARTENBERG, ROBERT. Died in San Francisco, November 16, 1956, aged 69, of heart disease. Graduate of the Universität Rostock Medizinische Fakultät, Rostock, Mecklenberg, Germany, 1920. Licensed in California in 1937. Doctor Wartenberg was a member of the San Francisco Medical Society.

IMPORTANT!

Scientific Motion Pictures

ATTENTION — ALL MEMBERS — CALIFORNIA MEDICAL ASSOCIATION

AT THE 1957 annual meeting of the California Medical Association, to be held at the Ambassador Hotel, Los Angeles, April 28 through May 1, approximately 100 motion pictures, on surgery and medicine, will be screened on the program of the Motion Picture Division.

The educational and scientific value of motion pictures has been proved by the large attendance at the Motion Picture Section during our previous meetings.

If you would like to present a scientific motion picture film on this program, you must submit your application to the Committee for approval not later than February 1, 1957.

Address all communications to: Arthur E. Smith, M.D., D.D.S., Chairman, Motion Picture Division, 1930 Wilshire Boulevard, Suite 511, Los Angeles 57, California.

APPLICATION FOR HOUSING ACCOMMODATIONS

Eighty-sixth Annual Session
CALIFORNIA MEDICAL ASSOCIATION
Los Angeles, California
APRIL 28—MAY 1, 1957

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association,** April 28-May 1, 1957, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

ALL RESERVATIONS MUST BE RECEIVED BEFORE: APRIL 1, 1957

HOTEL ROOM RATES*

	Single	Double	Twin Beds	Suites
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3400 Wilshire Boulevard				
Main Building	9.00-17.00		12.00-20.00	28.00-36.00
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THE GAYLORD HOTEL				
3355 Wilshire Boulevard	7.00-9.00	10.50	11.50-12.50	18.00
HOTEL CHANCELLOR				
3191 West Seventh Street	6.00-8.00	9.00-10.00	10.00-12.00	17.00-22.00
SHERATON-TOWN HOUSE				
2961 Wilshire Boulevard	11.00-16.00		16.00-23.00	31.00

***The above quoted rates are existing rates but are subject to any change which may be made in the future.**

CALIFORNIA MEDICAL ASSOCIATION
450 Sutter Street—Room 2000
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Please reserve the following accommodations for the 86th Annual Session of the California Medical Association, in Los Angeles April 28 - May 1, 1957.

Single Room $..... Double Bedded Room $..... Twin Bedded Room $.....

Small Suite $..... Large Suite $..... Other Type of Room $.....

First Choice Hotel..... Second Choice Hotel.....

ARRIVING AT HOTEL (date)..... Hour:..... A.M..... P.M. } Hotel reservations will be held until

Leaving (date) ..... Hour:..... A.M..... P.M. } 6:00 P.M., unless otherwise notified

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

.....

.....

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.....

Individual Requesting Reservations—Please print or type Delegate?..... Alternate?.....

Name..... County.....

Address..... City and State.....

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

AMERICAN medical research has in the past few years made strides undreamed of a few years ago. Back of this progress stand the medical schools of the nation. The medical schools are the foundation of America's health. Yet, in this fundamental field of medical education there is cause for the deepest concern because of the critical lag between the increasing financial needs of our 81 medical schools and the income available to them.

The major portion of school funds comes from state appropriations (for state schools only), tuition, alumni contributions, grants and the American Medical Education Foundation. Income from tuition constituted but a small part—19.2 per cent—of the 1955 basic operating budget. The cost of training a physician totals approximately $10,000 to $12,000, yet the student's total four-year tuition averages only $2,906.

Medical education is costly because of requirements for extensive laboratory facilities, the high ratio of teachers to students and the complicated techniques growing out of ever advancing American medicine.

It is to the urgent need of the medical schools for increased support that the American Medical Education Foundation is expressly devoted. The American Medical Education Foundation was founded in 1951 under the sponsorship of the American Medical Association for the purpose of raising funds for our medical schools from individual physicians and from medical groups. It was obvious at that time that leadership of any program to support the medical schools must come first from the medical profession itself. The physicians of the country, themselves graduates of these medical institutions, would be the first to recognize that the education of future doctors depended on the maintenance of high standards in medical education. And doctors know, too, what it costs for adequate training. They realize the reasons behind the increasing costs in the field of medical education and they know that these costs must be met so that the quality of instruction will be maintained.

As members of the American Medical Association, doctors are convinced that the answer to the pressing problem of medical education must be found in voluntary support. Otherwise the way will be open for government subsidy and the ultimate control of medical education and of medical practice. So AMEF is the profession's organization and as members of the Woman's Auxiliary we are proud to share with you this responsibility for American medicine.

Your auxiliary realizes, too, that its responsibility is two-fold. Not only must we lend our financial support to the Foundation but we must do our share in the task of awakening the American public to the importance of the medical schools in the life of the nation—to the fact that back of the strides in American medicine are the laboratories and the classrooms of the medical schools and that only through voluntary support can these schools continue to provide for the future health of America.

In order to do this task well we have studied the findings of the American Medical Education Foundation in regard to the needs of the medical schools so that our membership will be an informed one. We know the history of the Foundation. We know that during the past six years the Foundation has received and distributed to the schools the sum of $4,684,312. In 1955 more than 25,000 contributors made individual donations to AMEF.

Every dollar contributed to the Foundation goes to the medical schools because the American Medical Association assumes the cost of administration. This makes AMEF one of the few organizations now raising money whose entire income in contributions goes to the cause for which the money is raised. Contributions may be earmarked for specific schools if the donor so desires.

Other policies in regard to contributions have been formulated by the Foundation. One very important one is that donations to the medical schools carry no restrictions as to their use. The deans of many schools have expressed their gratitude for this provision and have pointed out that because of it the grants received are worth many times their face value. The files of the Foundation are filled with letters from the deans of the medical schools telling of the important equipment purchased, the new classrooms provided and the satisfaction experienced through the ability to keep and increase teaching staffs with adequate salaries. The importance of this policy cannot be stressed too much.

Last year California auxiliaries contributed $7,143.06 to the American Medical Education Foundation. We are proud of our share in the total of $106,222.26 which the Woman's Auxiliary gave to the A.M.A.

We feel it is indeed a privilege to work with you, our doctor husbands, for the medical schools from which you graduated, and, in so doing, for the future of American medicine.

MRS. JOHN L. GALLAGHER
California State Chairman
American Medical Education Foundation

POSTGRADUATE INSTITUTE

RIVERSIDE, SAN BERNARDINO AND ORANGE COUNTY MEDICAL SOCIETIES

Presented by *Postgraduate Activities Committee* of the California Medical Association, in cooperation with University of California at Los Angeles School of Medicine, Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education.

Disneyland Hotel, February 14 and 15, 1957

PROGRAM

Thursday Morning, February 14

PHARMACOLOGY

9:30-10:10 a.m.—*The Use of Androgens and Estrogens.* David H. Solomon, M.D., Assistant Professor of Medicine.

10:10-10:30 a.m.—*Narcotic Analgesics.* George W. Stevenson, M.D., Visiting Assistant Professor of Pharmacology.

11:00-11:40 a.m.—*Tranquilizers.* Sidney Cohen, M.D., Veterans Administration Center, Los Angeles.

11:40-12:30 p.m.—Discussion.

12:30- 1:30 p.m.—Lunch.
Physician Responsibility in Postgraduate Medical Education. Thomas H. Sternberg. M.D.

Thursday Afternoon, February 14

HAND SURGERY

1:30- 2:15 p.m.—*Surgical Anatomy of Forearm and Hand.* Franklin L. Ashley, M.D., Assistant Clinical Professor of Surgery.

2:15- 3:00 p.m.—*Functional Examination of the Hand and Purposeful Splinting.* James Wilson, M.D.

3:00- 3:45 p.m.—*Treatment of Primary Injuries.* Franklin L. Ashley, M.D.

3:45- 4:30 p.m.—*Tendon and Nerve Repair.* James Wilson, M.D.

4:30- 5:15—*Fractures of the Hand and Wrist.* Theodore A. Lynn, M.D., Associate Clinical Professor of Surgery (Orthopedics).

5:15- 5:45 p.m.—Question and Answer Period.

7:00 —Dinner.

Friday Morning, February 15

SPECIAL DISEASES AND DIET THERAPY

Wendell H. Griffith, Ph.D., Chairman, Professor and Chairman of the Department of Physiological Chemistry.

9:30-10:00 a.m.—*Basic Principles.* Wendell H. Griffith, Ph.D.

10:10-10:50 a.m.—*Dietary Restriction of Sodium and Fat.* Arthur U. Rivin, M.D., Clinical Instructor in Medicine.

11:00-11:40 a.m.—*Factors Affecting Inanition and Obesity.* Sherman M. Mellinkoff, M.D., Assistant Professor of Medicine.

11:40-12:30 p.m.—Panel Discussion. Wendell H. Griffith, Ph.D., and Staff.
Luncheon Speaker: Roger O. Egeberg, M.D.: *"Coccidioidomycosis."* (Sponsored by Orange and Riverside County Tuberculosis and Health Associations.)

Friday Afternoon, February 15

EMERGENCY CARE OF INJURIES

2:00- 5:00 p.m.—Panel Discussion.

Panel Members: Robert W. Bailey, M.D., Assistant Professor in Surgery (Orthopedics); David B. Sheldon, M.D., Instructor in Surgery; W. Eugene Stern, M.D., Associate Professor in Surgery (Neurosurgery), Moderator.

Assessment of the acutely injured patient, transportation, bandaging and splinting, methods of examination to ascertain the degree of injury.

Priority of management, preparation of the patient for surgical treatment in hospital.

Special consideration of the head injured patient, emergency treatment which should be offered to the head injured patient, the management of the urgent surgical problems prior to the arrival of any specialist team.

The handling of the "walking wounded." The matter of treatment of fractures on an Outpatient basis and in general the method of wound management—both the cleanly incised and contaminated wound as well as the grossly dirty contaminated wound.

HOSTS: Riverside County Medical Society • **REGIONAL CHAIRMAN:** H. C. Barron, M.D., 4030 Eighth Street, Riverside • **FEE:** $15.00. For additional information, contact Postgraduate Activities office, California Medical Association, 417 South Hill Street, Los Angeles 13. Special room rate at Disneyland Hotel: $12.00 per day (each room will sleep up to 4 people). Make hotel reservations early directly with hotel.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

The Fifth Annual Graduate Assembly devoted to the **Dynamics of Endocrine and Metabolic Disease** will take place February 11 to 13, 1957, at Highland-Alameda County Hospital, Oakland. It will be held under the auspices of the Committee for Postgraduate Medical Education of the Alameda-Contra Costa Medical Association and the Institute for Metabolic Research of the Highland-Alameda County Hospital. Enrollment will be limited to 100 by subscription. Inquiries should be addressed to Dr. Laurance W. Kinsell, Highland-Alameda County Hospital.

AMADOR

Dr. R. Judson Dowell, formerly of Auburn was appointed health officer of Amador County at a meeting of the county board of supervisors in December. On January 1 he assumed the position formerly held by Dr. Herbert Hobson, who resigned.

HUMBOLDT

Dr. Herman Iverson, Eureka, has been named president of the Humboldt-Del Norte Medical Society for 1957.

Dr. George Watson was elected vice-president; Dr. Walter Yeider, secretary; Dr. Paul Moynihan, assistant secretary, and Dr. Phillip Rummell, treasurer.

Dr. Frank O'Neil and Dr. Fred Olson were reelected delegates to the California Medical Association.

KINGS

Dr. Harold J. Jacob of Corcoran was reelected president of the Kings County Medical Society at a recent meeting of the organization. Other officers elected are Dr. Allen Shackleford of Avenal and Dr. George D. Guernsey of Lemoore. Dr. N. F. Sorenson and Dr. W. F. Chamlee, both of Hanford, were elected delegates to the C.M.A.

* * *

Dr. P. K. Edmonds, formerly of Corcoran but more recently in practice at Cedar City, Utah, was appointed director of public health for Kings County, effective January 1. The post was made vacant by the resignation of Dr. Donald E. Upp last summer.

LOS ANGELES

Dr. J. Norman O'Neill was installed as president of the Los Angeles County Medical Association January 1, succeeding Dr. Edward C. Rosenow, Jr., who was elected to the association's board of trustees for a seven-year term. Dr. Leon O. Desimone was elected vice-president, and Dr. William F. Quinn secretary-treasurer.

* * *

Dr. Lowell S. Goin was Carman Lecturer at the 42nd Annual Meeting of the Radiological Society of North America held December 2 to 7 in Chicago. The Carman Lecture, which is the main address of the Society's meeting, was established in memory of Dr. Russell D. Carman, pioneer radiologist.

* * *

The First Annual Postgraduate **Seminar on Psychiatry and Medicine,** which will be jointly sponsored by the Southern California Psychiatric Society, the Southern California District Branch of the American Psychiatric Association and the General Practice Section of the Los Angeles County Medical Association, will be held on Saturday and Sunday, January 19 and 20 at the auditorium of the Los Angeles County Medical Association.

The prime function of the seminar will be to inform general practitioners concerning the handling of psychiatric problems in practice. Registration will be without fee and open to members of the Los Angeles County Medical Association and the Southern California Psychiatric Society. Attendance at the meeting will be acceptable for credit by the American Academy of General Practice.

SAN FRANCISCO

At its meeting in December the San Francisco Medical Society installed **Dr. Donald M. Campbell** as president.

Others elected are Dr. Jane Schaefer, vice-president; Dr. Roberta Fenlon, secretary; Dr. George K. Herzog, Jr., treasurer, and Dr. Edgar Wayburn, editor of the society's bulletin. Dr. Robert C. Combs is president-elect.

New directors are Drs. Alexander F. Fraser, Agnes G. Plate, Rees B. Rees, Karl L. Schaupp, Jr., James H. Thompson, Malcolm S. M. Watts, and Eugene M. Webb.

* * *

Election of **Dr. Frank Gerbode** as an "Honorary Perpetual Student" of St. Bartholomew's Hospital Medical College, London, was announced recently by the dean of the institution. Dr. Gerbode, who served as an associate in surgery at St. Bartholomew's Hospital in 1949, is the sixteenth person to receive this highest honor conferred by the medical college. Another San Franciscan, Dr. Emile Holman, is also a Perpetual Student of St. Bartholomew's.

SANTA CRUZ

Dr. James Spencer of Watsonville was installed as president of the Santa Cruz County Medical Society and Dr. R. C. Alsberge of Santa Cruz was elected vice-president at the annual meeting held in December.

Dr. Samuel B. Randall of Santa Cruz, who has retired from active practice, was reelected secretary-treasurer, a post he has held for 29 years.

STANISLAUS

At the annual meeting of the Stanislaus County Medical Society on December 11, **Dr. Fred deLappe,** a graduate of Cooper College, class of 1897, an actively practicing general practitioner in Modesto from 1898 to 1953, and now retired, was called upon to participate in passing the gavel from outgoing president Dr. E. E. Chouret to the incoming president, his grandson, **Dr. Guerne W. deLappe.**

Dr. Robert W. Purvis was elected for the third consecutive year as secretary of the society.

GENERAL

The **Western Society for Clinical Research** will hold its Tenth Annual Meeting January 31 and February 1 and 2 at Carmel.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Disorders of Fluid and Electrolyte Metabolism, Etiology and Management. Tuesdays, February 5 through March 26, 1957. Sixteen hours. Fee: $40.00.

Fractures, Tuesdays, February 19 through March 26, 1957. Twelve hours. Fee: $30.00.

Sterility. Guest speakers: I. C. Rubin, M.D., New York, and M. B. Davis, M.D., Chicago. March 8 and 9. Nine hours lectures, six hours clinic.

The Pharmacological Basis of Therapeutics. Wednesdays, March 13 through May 8. Eighteen hours. Fee: $50.00.

Preventive Psychiatry in Pediatric Practice. Thursdays, March 21 through June 6. Twenty-four hours. Fee: $50.00.

Minor Surgery. Saturday, April 6.*

Dissection of Extremities. Mondays, April 29 through June 10.*

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Iron in Clinical Medicine (International Symposium). January 28 and 29, 1957. Sixteen hours.*

Internal Medicine in the Practice of Dentistry. Tuesday evenings, February 12 through March 12. Eight hours. Fee: $20.00.

Seminars in Medical Technology. Tuesday evenings, February 19 through April 2. Fee: $15.00.

Practical Management of Poliomyelitis. February 21-23.*

Symposium on Cerebral Palsy. Seven hours. March 2.*

Course for General Practitioners. Monday through Friday, March 4 to 8, Mount Zion Hospital. Thirty hours.*

Current Cardiac Concepts and Practice. Mornings, March 11-15. Fifteen hours.*

Electrocardiography in Daily Practice. Afternoons, March 11-15. Twenty hours.*

Symposium on Newborn. Children's Hospital, March 23.*

Advances in Diagnosis and Treatment of Metabolic and Endocrine Diseases. March 28-30.*

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: $250.00 per month.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

*Hours and fees to be announced.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Postgraduate Conference in Ophthalmology. March 18 to 22.

Contact: Office of the Dean, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15. WEst 1-8000, Extension 207.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Home Course in Electrocardiography. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Conferences and Live Clinics in Diseases of the Liver and Biliary Tract. All day, each day, Friday, Saturday and Sunday, March 22, 23, and 24, 1957. Hotel Statler and Los Angeles County Hospital. Fee: $65.00.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Surgical Anatomy: Demonstration and Lectures, Thorax, Abdomen and Pelvis. Wednesdays, January 16 through April 17, 1957. Twenty-six hours.

Management of Infertility. Thursdays, January 17 through March 7, 1957. Twelve hours.

Operative Surgery. Wednesdays, March 20 through June 5, 1957. Thirty hours.

Gynecology. Wednesdays, March 27 through May 29, 1957. Ten hours.

Thoracic Surgery. Wednesdays, April 24 through May 15, 1957. Eight hours.

Contact: Chairman, Section on Graduate and Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-9131, Ext. 205.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

AUDIO DIGEST FOUNDATION, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 6767 Sunset Blvd., Hollywood 28, Calif.

SACRAMENTO VALLEY CIRCUIT COURSES for Dunsmuir, Chico, Marysville and Auburn, in cooperation with Stanford University School of Medicine. Spring series begins week of March 4.

NORTH COAST CIRCUIT COURSES for Eureka, Ukiah and Napa, in cooperation with University of California, San Francisco. Spring series begins week of March 4.

WEST COAST CIRCUIT in cooperation with University of Southern California School of Medicine:

San Luis Obispo—Mondays, February 18, 25, March 4, 11, 1957.

Santa Maria—Tuesdays, February 19, 26, March 5, 12, 1957.

Santa Barbara—Wednesdays, February 20, 27, March 6, 13, 1957.

POSTGRADUATE INSTITUTES, 1957

SOUTHERN COUNTIES (Riverside, Orange and San Bernardino) in cooperation with University of California, Los Angeles, February 14 to 15, 1957, Disneyland Hotel, Anaheim. Chairman: H. C. Barron, M.D., 4030 Eighth Street, Riverside.

WEST COAST COUNTIES in cooperation with University of Southern California, March 7 to 8, 1957, Golden Bough Theater and La Playa Hotel, Carmel. Chairman: Edwin W. Tucker, M.D., 1073 Cass Street, Monterey.

SAN JOAQUIN COUNTIES in cooperation with University of California, San Francisco, March 21 to 22, Hotel Californian, Fresno. Chairman: Richard H. Whitten, M.D., 2912 Fresno Street, Fresno.

NORTH COAST COUNTIES in cooperation with Stanford University, April 11 to 12, 1957, Santa Rosa, place to be announced. Chairman: Robert S. Quinn, M.D., 185 Sotoyome Avenue, Santa Rosa.

SACRAMENTO VALLEY COUNTIES in cooperation with College of Medical Evangelists, June 19 to 21, 1957, Tahoe Tavern, Lake Tahoe. Chairman: C. M. Blumenfeld, M.D., 4700 Parkridge Road, Sacramento.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

Medical Dates Bulletin

JANUARY MEETINGS

SOUTHERN CALIFORNIA CHAPTER, AMERICAN COLLEGE OF SURGEONS, Biltmore Hotel, Santa Barbara, January 18, 19, and 20. *Contact:* Max R. Gaspar, M.D., Secretary-Treasurer, 211 Cherry Avenue, Long Beach 2.

LOS ANGELES COUNTY HEART ASSOCIATION Mid-Winter Heart Symposium. Los Angeles County Medical Association Bldg., Wednesday 2 to 5 p.m., January 23. *Contact:* Roxanna Jackson, Program Assistant, Los Angeles County Heart Association, 660 South Western Ave., Los Angeles 5, or telephone DUnkirk 5-4231.

CALIFORNIA RURAL HEALTH COUNCIL Third Annual Conference on Rural Health, January 25 and 26, Hotel Senator, Sacramento. *Contact:* Glenn Gillette, associate director, Public Relations, California Medical Association, 450 Sutter Street, San Francisco.

FRESNO COUNTY HEART ASSOCIATION Fifth Annual San Joaquin Valley Symposium on Heart Disease. Hacienda Motel, 9 a.m. to 5 p.m., January 30. *Contact:* Edwin Graveline, M.D., Chairman, Scientific Committee, Fresno County Heart Association, 329 North Van Ness, Fresno 1.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Wednesday afternoon and Thursday morning, January 30 to 31, Golden Bough Theater and La Playa Hotel, Carmel.†

WESTERN ASSOCIATION OF PHYSICIANS, Wednesday morning and Friday afternoon, January 30 and February 1, Golden Bough Theater, La Playa Hotel, Carmel.†

WESTERN SOCIETY FOR CLINICAL RESEARCH, Wednesday afternoon, Thursday and Friday mornings, Golden Bough Theater and La Playa Hotel, Carmel.†

Section on Diseases of the Chest, LOS ANGELES COUNTY MEDICAL ASSOCIATION and LOS ANGELES COUNTY TUBERCULOSIS AND HEALTH ASSOCIATION Sixth Biennial Postgraduate Course on Diseases of the Chest. All day each day January 31 to February 2 at Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles. *Contact:* David Salkin, M.D., Veterans' Hospital, San Fernando.

FEBRUARY MEETINGS

CONGRESS ON INDUSTRIAL HEALTH, A.M.A. Council on Industrial Health. Biltmore Hotel, Los Angeles, February 3 to 6. *Contact:* American Medical Association, 535 North Dearborn St., Chicago 10.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Yolo County Medical Society, February 6.§

COMMITTEE ON POSTGRADUATE MEDICAL EDUCATION of the ALAMEDA-CONTRA COSTA MEDICAL ASSOCIATION and the Institute for Metabolic Research Fifth Annual Graduate Assembly on Dynamics of Endocrine and Metabolic Disease. February 11 to 13, Highland-Alameda County Hospital. *Contact:* L. W. Kinsell, M.D., Institute for Metabolic Research, Highland-Alameda County Hospital, Oakland.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for San Diego County Medical Society, February 12.§

AMERICAN ACADEMY OF ALLERGISTS, Princess Kaiulani Hotel in morning, and Mabel Smythe Auditorium in evening February 15. *Contact:* Mr. R. M. Kennedy, Executive Secretary, Honolulu County Medical Society, 510 South Beretania Street, Honolulu 13.

CALIFORNIA MEDICAL ASSOCIATION Postgraduate Institute, Disneyland Hotel, Anaheim, February 14 and 15. See also Postgraduate Notices.

ORANGE COUNTY HEART ASSOCIATION Annual Medical Symposium, Disneyland Hotel, February 16. *Contact:* Howard Buswell, executive director, Orange County Heart Association, 1704 North Olive or P. O. Box 1704, Santa Ana.

Ninth Annual Mid-Winter Radiological Conference sponsored by LOS ANGELES RADIOLOGICAL SOCIETY. Biltmore Hotel, Los Angeles, February 22 and 23. *Contact:* Louis J. Bonann, M.D., 1245 Glendon Avenue, Los Angeles 24 for dinner reservations; or Nathan M. Spishakoff, M.D., 405 North Bedford Drive, Beverly Hills.

AMERICAN COLLEGE OF CHEST PHYSICIANS Postgraduate Course on Diseases of the Chest. February 25 through March 1, 9 a.m.-5 p.m., Mark Hopkins Hotel, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut Street, Chicago 11.

† *For information contact:* Joseph Ross, M.D., associate dean, UCLA Medical Center, Los Angeles 24.

MARCH MEETINGS

MEDICAL ADVISORY BOARD, UNITED CEREBRAL PALSY ASSOCIATION all day Symposium on Cerebral Palsy, San Francisco, March 2. Guest speaker: Dr. Samuel P. Hicks, Pathologist, Harvard Medical School. *Contact:* Mrs. Marjorie E. Brush, executive director, 47 Kearny St., San Francisco 8 or phone EXbrook 2-1862.

SOCIETY OF GRADUATE SURGEONS OF LOS ANGELES COUNTY HOSPITAL Surgical Forum, March 4 to 8, Ambassador Hotel, Los Angeles. *Contact:* Wm. F. Roe, M.D., 14431 Hamlin St., Van Nuys, Calif.

COLLEGE OF MEDICAL EVANGELISTS SCHOOL OF MEDICINE Annual Alumni Postgraduate Convention. Refresher courses, White Memorial Hospital, March 10 and 11; Scientific Assembly, Biltmore Hotel, March 12 to 14, both in Los Angeles. *Contact:* Walter B. Crawford, managing director, Alumni Postgraduate Convention, 316 N. Bailey St., Los Angeles 33, or telephone: ANgelus 2-2173.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Tulare County Medical Society, March 28.§

CALIFORNIA TUBERCULOSIS AND HEALTH ASSOCIATION and the CALIFORNIA TRUDEAU SOCIETY Joint Annual Meeting, Hotel Statler, Los Angeles, March 28 to 30, 9 a.m to 5 p.m. *Contact:* E. L. Daggett, Director, Public Information, 130 Hayes St., San Francisco 2, or telephone HEmlock 1-8771.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Los Angeles County Medical Association, March 31.§

APRIL MEETINGS

REGIONAL MEETING INTERNATIONAL COLLEGE OF SURGEONS, Las Vegas, Nevada, April 8 and 9. *Contact:* Ross V. Parks, M.D., 1930 Wilshire Blvd., Los Angeles 57.

LETTERMAN ARMY HOSPITAL "Surgery in Acute Trauma," 8 a.m. to 4:30 p.m., April 1 to 3.‡

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Marin County Medical Society, April 4.§

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Ventura County Medical Society, April 9.§

CALIFORNIA SOCIETY OF ANESTHESIOLOGISTS, INC., Annual Meeting, Sun Valley, Idaho, April 9th. *Contact:* Francis E. Guinney, M.D., secretary, 2790 Monte Mar Terrace, Los Angeles 64.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION Fifteenth Annual Meeting, April 9 to 12, San Antonio, Texas. *Contact:* Donald G. Davy, M.D., State Department of Public Health, 2151 Berkeley Way, Berkeley.

VALLEY CHILDREN'S HOSPITAL Spring Clinics, Roosevelt High Auditorium, Fresno, April 12-13. *Contact:* Valley Children's Hospital, Millbrook and Shields Avenue, Fresno.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Kern County Medical Society, April 16.§

‡ *Contact:* Major Max E. Knickerbocker, MSC, Chief of Education and Training Branch, Letterman Army Hospital, San Francisco.

§ *Contact:* Walter E. Batchelder, M.D., Medical Director, Cancer Commission, 467 O'Farrell St., San Francisco.

SAN FRANCISCO HEART ASSOCIATION Nurses Institute on the Care of the Cardiac Patient, April 17 and 18, 8:30 a.m. to 5 p.m., San Francisco. *Contact:* Mr. Lawrence Kramer, Executive Director, San Francisco Heart Association, 604 Mission Street, San Francisco, or telephone: YUkon 2-5753.

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for San Luis Obispo County Medical Society, April 20.§

LETTERMAN ARMY HOSPITAL "Oral Surgery," 8 a.m. to 4:30 p.m., April 22 to 26.‡

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Merced County Medical Society, April 25.§

CALIFORNIA MEDICAL ASSOCIATION Annual Meeting, Ambassador Hotel, Los Angeles, April 28 to May 1. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director of Public Relations, 417 S. Hill St., Los Angeles 13.

SUMMER AND FALL MEETINGS, 1957

CANCER COMMISSION, CALIFORNIA MEDICAL ASSOCIATION, Cancer Conference for Napa County Medical Society, May 8.§

CALIFORNIA HEART ASSOCIATION Annual Meeting Lafayette Hotel, San Diego, May 17, 18, and 19. *Contact:* J. Keith Thwaites, executive director, California Heart Association, 1428 Bush Street, San Francisco.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION annual meeting, Lafayette Hotel, Long Beach, May 29 and June 2. *Contact:* Mrs. L. Amy Darter, Secretary-Treasurer, State Dept. Public Health, 2151 Berkeley Way, Berkeley.

CHILDREN'S HOSPITAL OF THE EAST BAY Pediatric Seminar and Clifford Sweet Lectures, June 7 to 8. Guest lecturer: Sydney S. Gellis, M.D., Boston. *Contact:* James Dennis, M.D., medical director, 5105 Dover St., Oakland 9.

IDAHO STATE MEDICAL ASSOCIATION 65th Annual Meeting, Sun Valley, June 16 to 19. *Contact:* Mr. Armand L. Bird, executive secretary, 364 Sonna Bldg., Boise, Idaho.

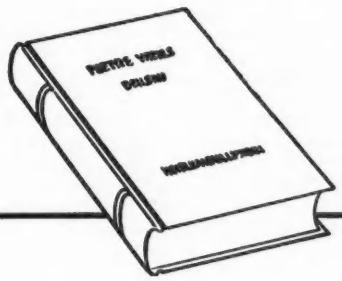
WYOMING STATE MEDICAL SOCIETY ROCKY MOUNTAIN MEDICAL CONFERENCE Annual Joint Meeting, Jackson Lake Lodge, Moran, Wyoming, June 16 to 19. *Contact:* H. L. Harvey, M.D., Casper, Wyoming.

COLORADO DIVISION, CANCER SOCIETY ROCKY MOUNTAIN Cancer Conference, 9 a.m., July 10 and 11, Shirley-Savoy Hotel, Denver. *Contact:* John S. Bouslog, M.D., Chairman, 835 Republic Bldg., Denver 2.

WASHINGTON STATE MEDICAL ASSOCIATION Annual Meeting, Olympic Hotel, Seattle, Washington, September 15 to 18. *Contact:* Mr. Ralph W. Neill, executive secretary, 1309 Seventh Ave., Seattle, Washington.

SAN FRANCISCO HEART ASSOCIATION 28th Annual Postgraduate Symposium on Heart Disease, October 2 to 4, St. Francis Hotel, San Francisco. *Contact:* Lawrence I. Kramer, Jr., executive director, 604 Mission St., San Francisco.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE Annual Meeting, October 25 to 27, El Mirador, Palm Springs. *Contact:* Mrs. Mildred B. Coleman, assistant secretary, 350 Post St., San Francisco 8.



THE PHYSICIAN'S *Bookshelf*

PULMONARY EMPHYSEMA—Edited by Alvan L. Barach, M.D., Assistant Clinical Professor of Medicine, and Hylan A. Bickerman, M.D., Assistant Clinical Professor of Medicine, both of Columbia University College of Physicians and Surgeons, The Williams and Wilkins Company, Baltimore, 1956. 545 pages, $10.00.

The diagnosis of pulmonary emphysema implies progressive disability with a discouraging clinical course of respiratory, circulatory, and general metabolic deterioration. There have been excellent studies of the pathology of this disease, and extensive investigation of the pathophysiology in recent years, but the pathogenesis remains ill-defined. There has been a great need for general review of this subject in order to correlate the knowledge in these different fields, to eliminate some of the confusion in terminology, and to arrive at more definite concepts of pathogenesis and effective methods of treatment.

Barach and Bickerman have edited "Pulmonary Emphysema" from the clinician's viewpoint with the commendable utilization of knowledge of pathological physiology as a basis for therapy. Discussion of the abnormalities in breathing mechanics, gas exchange, and pulmonary circulation are the foundations for the book, and are extremely well-presented by several investigators. Dayman's chapter on the mechanics of breathing should be read first since it so clearly presents the basic problems in pulmonary emphysema. The description of the abnormalities of air-flow due to expiratory bronchiolar obstruction which is secondary to intrinsic disease of the bronchioles and to loss of supportive lung structure, explains the clinical picture of abnormal lung function. The air-flow dynamics by which inefficient bullae are inflated in preference to more normal adjacent lung tissue is well-described. The effects of impaired gas-exchange in pulmonary emphysema with hypoxemia, carbon dioxide retention, and associated alterations in acid base balance, are clearly presented. The importance of the mechanism of adaptation to high levels of carbon dioxide in patients with hypercapnia is emphasized. The whole problem of carbon dioxide retention, with its effects on respiration and other functions is thoroughly discussed. One might conclude with the generality that the combination of increased carbon dioxide levels with acidosis is usually associated with symptoms, and as such, should be corrected by methods which improve alveolar ventilation.

The obvious steps from the consideration of the pathological physiology leading to a logical basis for therapy are presented by the authors in the first few chapters. There is much too much post hoc reasoning in support of some of the conclusions, and unfortunately there is a great deal of confusion in this part of the book. The usual methods of medical therapy are presented and analyzed from the experience of the authors. In these and other chapters, there are adequate discussions of the role of infection in this disease, the use of mechanical aids to improve ventilation and aid removal of secretions, and the use of drugs such as antibiotics, diamox, bronchodilators and detergents. The popular intermittent positive pressure breathing (IPPB) treatment is discussed in several chapters, and leaves one with the conclusion that IPPB has no great place in the routine management of this disease, but does have a place in aiding ventilation for carbon dioxide removal and in the patient with marked bronchial obstruction. Deterling's discussion of the role of surgery in emphysema is disappointingly inconclusive. This writer summarizes various thoughts about the role of surgery in this disease without much critical analysis. The general advisability of removing blebs and bullae, especially when there is evidence of compression of surrounding tissue, is restated. There is an excellent chapter on pulmonary function testing.

In summary, this book presents some excellent discussions of the pathological physiology of pulmonary emphysema and good summaries of present therapeutic methods. One might hope to read a more thorough discussion of the pathogenesis of this disease and of some of the recent studies on the pathology. The book is recommended for all physicians who are dealing with this problem, whether in general practice or specializing in chest diseases. The chapters on the pathological physiology are very clearly written and well-illustrated. The emphasis of the book is on therapy, and there are many helpful points for the practitioner. It is obvious that many questions about this disease remain unanswered, and the need for continued investigations is apparent.

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CYTOLOGY OF THE BLOOD AND BLOOD-FORMING ORGANS—Marcel Bessis, Director of Research Laboratory, Centre National de Transfusion Sanguine, Paris, France, translated by Eric Ponder. Grune and Stratton, New York, 1956. 629 pages, $22.00.

This book was translated from the original by Dr. Ponder, the Nassau Hospital, Mineola, New York. The original title was Traite de Cytologie Sanguine, by Marcel Bessis, director of Research Laboratory, Centre National de Transfusion Sanguine, Paris, France.

The attempt to enlarge upon the earlier concepts of stained films in cytology of classical hematology is accomplished with great facility and clarity. There are sections devoted to techniques of phase-contrast studies, cytochemical methods, and electron microscopy, as well as to examination of the blood cells under the various techniques of polarized light, ultraviolet light and fluorescence microscope.

The illustrations are extremely well produced. Interspersed throughout are drawings, sketches and diagrams, adding to the value of the written details. The photographic reproductions of fields as seen under the electron microscope and under phase-contrast under great magnifications show quite striking degrees of resolution and clear focus.

This book is a valuable addition to hematologists in general, as well as to students of cytology. The newer techniques described will undoubtedly add much useful information in the future. The book is, however, somewhat expensive.

CANCER OF THE LUNG: An Evaluation of the Problem—Proceedings of the Scientific Session, Annual Meeting, November 3-4, 1953. American Cancer Society, Inc., 527 West 57th Street, New York 19, N. Y., 1956. 322 pages. No charge known.

This interesting monograph considers several aspects of the problem of primary bronchial cancer. There are up-to-date sections on incidence, etiology, methods of detection and methods of treatment.

In discussing the place of tobacco in the etiology of lung cancer, one of the participants refers to statistical study performed in Chicago in 1949 which showed that in a male population of 100,000 in that city, there were 78 cases of cancer of the lung that year, while in the same period of time in the suburbs of Chicago there were only about 17 cases in a similar population; the discussant opined that this suggested the probability that cigarette smoking was of secondary importance compared to air pollution.

Dr. Andervont, in a section on the experimental production of lung tumors, suggests that his readers can relax because the experimental animal has a difficult time in answering questionnaires, never spontaneously smokes cigarettes and studiously avoids the payment of taxes. Dr. H. S. N. Greene discusses his experience with transplants of human lung cancer. In his material, every single one was heterologously transplantable, in contrast to a transplantability rate of only about 50 per cent of epidermoid carcinoma in parts of the body other than the lung. He states that the experimental lung cancer produced by methyl cholanthrene in animals does not have the same identity as the human disease; indeed, he has failed to produce cancer with asbestos, beryllium or tobacco.

Eisenberg of the A.E.C. points out that in this country there have been no cases of lung cancer reported in the relatively large group of workers who handled radium, thorium, and uranium prior to the onset of the atomic energy industry, despite the fact that prior to 1940 about 300,000 pounds of uranium were extracted per year from ores mined on the Colorado plateau.

Counteracting some of these opinions, Wynder, Hammond and others believe that there is a cause and effect relationship of human cancer with cigarette smoking and with certain toxic occupational hazards.

Dr. L. W. Guiss brings the report on the mass survey for the detection of pulmonary disease in Los Angeles up to date. This may be summarized as follows:

Approximately 2,000,000 persons were given minifilms.
64,000 disease suspects were encountered, of which
3,500 were tumor suspects. Of these
340 had tumors confirmed, of which
222 were bronchial carcinomas.
111 of these were subjected to operation.
31 were alive up to 2½ years.

The author points out that if the survey had been confined to persons over the age of 45, and had been repeated every six months for an indefinite period, the yield would, of course, have been greater.

In discussing the problem of early detection of lung cancer, Rigler points out that "the high hopes for the early detection of cancer of the lung through the medium of x-ray surveys have met with considerable disappointment." He illustrates some cases of rather slow growing bronchial carcinoma and discusses the desirability of retaining chest films on adults for several years. Sosman mentions the difficulty of persuading adults to have regular chest roentgenograms, and observes "furthermore, the reading of the routine survey films is usually left to the younger men on the radiological staff because it is a dull, deadly and monotonous job and by its very nature breeds errors arising from inattention . . . my best suggestion on this point is to turn such work over to a well trained woman physician, for the women stand up under deadly routine much better than men." It strikes this reviewer as curious that the actual interpretation of mass surveys is so often eschewed by the persons who recommend them the most.

The modest results obtainable by modern surgery and modern radiotherapy are well summarized in a series of chapters towards the end of the monograph. There are 16 pages with illustrations on each side, most of them very well reproduced. There is no index. Even though this copy of the proceedings reaches publication three years after the actual event, the reviewer regards it as a worthwhile contribution to the literature on the important subject of primary bronchial cancer.

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CLINICAL HEMATOLOGY—Fourth Edition—Maxwell M. Wintrobe, M.D., Ph.D., Professor and Head, Department of Medicine and Director Laboratory for the Study of Hereditary and Metabolic Disorders, University of Utah, College of Medicine, Salt Lake City. Lea & Febiger, Philadelphia, 1956. Thoroughly Revised, 236 Illustrations and 20 Plates, 18 in Color. 1,184 pages, $15.00.

Doctor Wintrobe has again taken upon himself the monumental task of reviewing the recent hematologic literature and presenting a new edition of his textbook, which is one of the medical classics. As before, it is comprehensive yet very readable, and the format is essentially the same. New and rewritten sections are those on hemoglobin abnormalities, hemoglobinopathies, hemolytic anemias, blood coagulation and hemorrhagic disorders, and the production and destruction of erythrocytes. The bibliography is extensive with references into 1956. The best of all hematologic texts, this book should be available to all whose work brings them in contact with the blood. This includes medical students, general physicians, internists, hematologists, pathologists, laboratory workers and even surgeons.

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THE RELIEF OF SYMPTOMS—Walter Modell, M.D., F.A.C.P., Associate Professor, Clinical Pharmacology, Cornell University Medical School. W. B. Saunders Company, Philadelphia, 1955. 450 pages, $8.00.

This book is offered as a practical guide to the problems of providing the patient with relief from his distress as opposed to curing his disease. The author believes that relieving distressing symptoms comprises an exceedingly important part of medical care, and to ignore the reactions of the patient to distress is to deprive him of a significant part of what modern medicine has to offer. The book is an outgrowth of a series of lectures to medical students and will probably be of more use to students than practitioners.

The counsel offered by Dr. Modell typifies what every physician tries to accomplish, whether or not in the exact form suggested by the author. As he himself says, there is no original advice in the book. However, his approach is that of the average experienced and thoughtful doctor.

The book is divided into three parts. First, there are five introductory chapters on general considerations: The meaning of symptoms, their analysis, their importance, the methods of providing relief, and the analysis of response to treatment. These form a basis for the approach to treatment of symptoms in general. The second part comprises 24 chapters, on specific groups of symptoms. The third part is a discussion of cortisone and the masking of symptoms. Everything is nicely pigeon-holed, outlined and summarized. Old wives' tales and pharmacologists' wisdom are discussed and dealt with. With all of this, there is a limited amount of specific advice on individual subjects.

THE PREMARITAL CONSULTATION—A Manual for Physicians—Abraham Stone, M.D., Associate Clinical Professor of Preventive Medicine, New York University College of Medicine, Director, Margaret Sanger Research Bureau; and Lena Levine, M.D., Associate Medical Director, Margaret Sanger Research Bureau. Grune and Stratton, New York, 1956. 90 pages, $3.00.

Young people seek in marriage the satisfaction of three basic human needs: Love and affection; legal and social sanction of satisfaction of their normal sexual needs; the establishment of a home and family.

The Premarital Consultation is written for the general practitioner who has an interest in this field. It is a small book of some 90 pages written in the form of a sample history, examination and interview to meet the needs of the average healthy couple who come for a general premarital consultation. A couple may be merely seeking factual information that will facilitate adjustment or they may be concerned by some specific aspect of marriage. The histories of the couple should be taken separately to provide the opportunity for greater freedom and for discussion of any problem which he or she would not prefer to raise in the presence of the other.

There are appendices listing contraceptive techniques, marriage laws and national organizations concerned with family relations.

This is an excellent small book which can be recommended to any physician who is interested in the subject of premarital consultation.

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THE DRUG ADDICT AS A PATIENT—Marie Nyswander, M.D., Senior Supervising Psychiatrist, Post Graduate Center for Psychotherapy; Consultant, New York City Department of Health; President, National Advisory Council on Narcotics. Grune & Stratton, Inc., New York, 1956. 179 pages, $4.50.

That the whole subject of drug addiction and its management is controversial is attested to by the pleomorphic and often fatuous reports that one reads in the lay press; almost everyone except experienced physicians have had a hand in outlining the means by which an extremely complicated and tragic disease should be controlled.

Dr. Nyswander's book is therefore timely and should be welcomed by the whole profession of medicine. The author is well qualified to speak upon the subject, having spent several years in the United States Public Health Service a part of which was served in the governmentally established Lexington, Kentucky, Hospital given exclusively to the care and treatment of committed narcotic addicts. She is obviously a thorough going physician, having been certified by the American Board of Psychiatry and Neurology, and since her training, having been appointed supervisor and director of a well established postgraduate psychotherapy clinic in New York City.

The book deals with the history and background and drug addiction as it has developed in this country, the laws that have been passed in an attempt to control the traffic, and with a philosophy so simple and clear that one is immediately impressed with its experienced authority.

There follows well organized chapters on Pharmacology of the principal addicting drugs, Physiology of drug addiction, Psychology, dealing with the addicts personality, theoretical formulations, etc., Social Pathology, Clinical diagnosis, Withdrawal treatment, Rehabilitation, and an excellent comparative chapter on the British approach. Her last section deals with a six point program that was recently proposed by the New York Academy of Medicine.

In the main Dr. Nyswander points out that drug addiction is a distinct "disease entity" that should be treated as disease and not as crime. She then discusses the means by which this may be done. Her experience has impressed her with the futility of the complete prohibitive and punitive approach that has been our tragic experience during the past forty-odd years. Her views are more appreciated for their honesty and originality since there was ample time during her training experience within a governmental bureau for her to be regimented into that bureaucratic type of thinking and rationalization that marks so many people who must conform to stylized patterns of performance. The author's courage is understandable when one reads her full account of the "whole truth" regarding the "clinic trials" of the 1920's and her criticism of the many reports published by the Bureau of Narcotics that distort the facts. At the same time no attempt is made to discredit those advances that have been made by governmental intervention in a problem that plagues every stratum of our society. One has the impression upon completing the book that here is a work that has been ably and honestly performed in the interest of the people and that the medical profession should assume its responsibility in the medical aspects of a medical problem. The book should be a reading "must" on every American physician's list.

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PATHOLOGIC PHYSIOLOGY—Mechanisms of Disease—Second Edition—Edited by William A. Sodeman, M.D., F.A.C.P., Professor of Medicine, School of Medicine, University of Missouri. W. B. Saunders Company, Philadelphia, 1956. 963 pages, 173 illustrations, $13.00.

Pathological physiology includes the many phases of pathogenesis of disease. It covers the mechanisms whereby etiologic agents effect their damage.

The subject matter of this text is considered under conventional headings—Genetics, Growth and Neoplasia; Metabolism and the Endocrine Glands; Infection and Allergy; Physical, Toxic and Chemical Agents; Circulatory System; Respiratory System; Digestive System, Urinary Tract; Blood and Spleen; Locomotor System; Nervous System. However, the discussions center around the mechanisms whereby agents producing disease bring about the changes rather than about the agents themselves.

The second edition has included the addition of some 155 pages as well as changes in the general sequence. New chapters have been added on the nervous system by Dr. Russell N. DeJong and on Genetics, Growth and Neoplasia by Dr. Madge T. Macklin. The latter is noteworthy in the way it points out differences between clinical medicine and other types of biology in the consideration of cancer. Biologists working with cancer in mice feel that it is no longer necessary to submit proof that cancers are inherited, but that it merely remains to find out how they are inherited. On the other hand, doctors still require evidence that cancer in man has a genetic basis. Dr. Macklin feels that this is a misconception of the meaning of heredity. Cancer, she points out, is in no sense different from any trait which we ordinarily call hereditary. When we say a disease or normal condition is inherited, we understand that this is a short cut to saying that genes conditioning the development of the trait are the inherited substance and whether or not the trait ultimately comes to expression is the result of intra-action between the gene complex and the surrounding milieu. She points out other factors in this regard: Cancers may be inherited even though the parents have not cancer; cancers depend upon multiple genes rather than a single gene; cancers probably represent multiple diseases rather than a single disease. What is inherited apparently is a complex of genes for cancer of specific organs, or site specificity.

The first edition of "Pathologic Physiology" was considered very favorably (California Medicine 74, 4, 289 (April) 1951). The second is similar recommended.

HANDBOOK OF PHYSICAL THERAPY—Robert Shestack, TH. G.R.P., P.T.R. Technical Director, Department of Physical Therapy, Washington County Hospital, Hagerston, Maryland; Director, Department of Physical Therapy, and Consulting Physical Therapist, Kings Daughters Hospital, Martinsburg, West Virginia. Springer Publishing Company, Inc., New York 10, N. Y. 1956. 199 pages, $4.25.

The author, a physical therapist, has written this book so that the doctor will know how to order physical therapy. In telling the doctor how to order physical therapy, he lists the various types of modalities which are available. The doctor is expected to diagnose the condition of his patient and to choose from the list of modalities those which he wishes the physical therapist to apply. How these are to be applied is left to the discretion of the physical therapist.

He goes on to discuss the various modalities available for the application of heat, such as radiant heat and infrared radiation, diathermy, microwave diathermy, ultrasound, ultraviolet irradiation, galvanic current, low frequency currents, electrodiagnosis, faradic current, paraffin baths, hydrotherapy, massage and exercise. He discusses briefly the physiology of these agents and then relates the therapeutic indications and contraindications for them. He has chosen good textbooks from which to gain this material, but it has been briefed to such a point as to give no clear conception of the agent and its particular place. With the rapid progress being made in physical medicine, many of the applications are no longer in use, while many newer methods are not mentioned. The author has attempted a large undertaking.

"Since the examining physician must make the diagnosis before the therapist can administer treatment, we have limited ourselves merely to a discussion of treatment." (Page 96) "Because of the many therapeutic methods available to the doctor, he is sometimes at a loss to determine which to prescribe; in general, he may employ the following plan": And so a physical therapist describes to the doctor of medicine how a patient with arthritis and rheumatic conditions, degenerative joint disease, peripheral nerve conditions, neurological conditions, peripheral vascular conditions, acute joint injuries, allied conditions and orthopedic disorders, fractures, hand injuries, poliomyelitis, genitourinary conditions, dermatological conditions, burns, eye, ear, nose and throat conditions should be treated. It would seem to the reviewer a reflection on the medical schools and the medical profession that a therapist should consider it necessary to write a book for the purpose of telling physicians how to treat their patients.

The books listed in the bibliography should be of real value to the physician who wishes to prescribe physical therapy for his patients.

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A HISTORY OF THE THERAPY OF TUBERCULOSIS and THE CASE OF FREDERIC CHOPIN—Esmond R. Long, M.D., Director of Medical Research, National Tuberculosis Association. University of Kansas Press, Lawrence, Kansas, 1956. 71 pages, $2.00.

In his Logan Clendening lecture Dr. Long gives a good readable summary of the treatment of tuberculosis from ancient to modern times. Much material is compressed into a brief space and no important phase of the subject is left untouched. As to the other lecture—The Illness and Medical Care of Frederic Chopin—the reviewer can make no critical judgment. It is however an interesting tale. Apparently Chopin fell into the same difficulty that Laennec, John Keats and the Brontes all succumbed to: Rest only when they could not get on their feet, then as soon as they were better, off on restless activities again despite hemorrhages and other severe symptoms. The two essays bring out well the great distance we have come in therapy of tuberculosis.

ORAL CANCER AND TUMORS OF THE JAWS—George S. Sharp, M.D., F.A.C.S., F.A.C.R. (Ther.), Professor of Pathology, School of Dentistry, Assistant Clinical Professor of Surgery, School of Medicine; Weldon K. Bullock, M.D., M.Sc.(Path.), Associate Clinical Professor of Pathology, School of Medicine, and John W. Hazlet, D.D.S., Lecturer, Oral Tumor Pathology, School of Dentistry; all from the University of Southern California. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1956. 561 pages, $15.00.

All lesions of the mouth and jaws are covered with a pleasing clarity of description and without confusing or unnecessary words. Especially impressive are the great number of photographs. Of course, they would be much better in color but the cost of a book of that type would be prohibitive except perhaps for the Government.

I found that viewing the photographs with an ordinary magnifying glass brings out the lesions with much more clarity and gives them a somewhat third dimensional character.

They will provide for the surgeon an excellent aid in arriving at differential diagnoses. I can highly recommend this book for those who are called on frequently to diagnosis and treat lesions of the mouth and jaws.

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MEDITATIONS ON MEDICINE AND MEDICAL EDUCATION—Past and Present—I. Snapper, M.D. Grune and Stratton, New York, 1956. 138 pages, $3.75.

The title of this small and unusual book scarcely reflects the nature of its contents. The book consists of three essays which, in general, treat of the contributions made directly or indirectly by Dutch physicians to the growth and development of American medicine, and the whole is held together and given a degree of unity and consistency by a plea for the greater recognition of the art as opposed to the science of medicine.

The first of the three essays details the background, work and influence of pioneer Dutch physicians, surgeons and midwives who participated in the settlement of the colony of New Netherlands established at the mouths of the Hudson and Delaware rivers, and thus provides a picture of the earliest medicine of this country.

The second essay follows the origins and fate of clinical Hippocratic medicine to its restoration under the great teacher-physician Herman Boerhaave (1668-1738), and finally traces the influence of Boerhaavian principles and teachings through his pupils on the organization of the first American medical schools and on American medical practice.

The first two of these essays constitute a historical preliminary to the third, in which distinctions are drawn between bedside and experimental medicine. The author voices his concern for the future of medicine with the loss of, and underemphasis given to, Hippocratic clinical medicine in the curricula of our present-day medical schools. The author correctly points out that this loss was due to Flexner who, despite his great contribution to medical education in getting rid of the diploma mills, had little understanding of the meaning of Hippocratic medicine. The great weakness of the Flexner report in this regard needs wider recognition and the author has much of importance to say on the subject.

All those interested in medical education will find Dr. Snapper's book profitable reading and many a clinician will derive satisfaction from it. The subject is a most cogent one in this day when more and more pressure is being put on medical schools to install "absolute" full-time which inevitably will add further to the loss of Hippocratic principles.

If a word of criticism may be offered it is to the effect that in its historical portion there is an undue reliance upon secondary sources.

WILLIAMS OBSTETRICS—Eleventh Edition—Nicholson J. Eastman, Professor of Obstetrics, Johns Hopkins University. Appleton-Century-Crofts, Inc., New York, 1956. 1212 pages, $14.00.

This new edition should secure for "Williams Obstetrics" a firm footing for all time as a "standard text," or the kind of book described by David Sinclair in his essay on "The Student Textbook" as one which is unanimously accepted by the most diverse medical schools. He goes on to say that "some of its success indeed may be due to a combination of luck and good publishing management, but if so many find it useful one cannot escape the conclusion that it must fulfill its purpose better than most of its fellows." Herein appears to lie the success "Williams" has enjoyed as an undergraduate text since its first edition appeared in the earliest days of this century.

Your reviewer's favorable comments on the previous (tenth) edition, the first under Eastman's editorship, appeared in this journal in January, 1951. There is little else one can say about the new edition beyond pointing out that it is a better book than its predecessor for at least two reasons. In the first place, a larger proportion of the text has been rephrased in Eastman's pleasing and lucid editorial style. Secondly, as one would suspect, there are many new or completely rewritten sections concerning problems which have been the focus of obstetric research in the past five or six years, such as fibrinogenopenia, the use of hypotensive drugs, uterine blood flow, adrenocortical hormones, and retrolental fibroplasia, just to mention a few. Included in the book for the first time is an excellent chapter on the psychiatric aspects of pregnancy, written by Leo Kanner.

A larger and more attractive type is used in this edition, and the illustrations are more numerous, yet the total length of the volume has not been appreciably changed. "Williams" will continue to rank as the number one choice of most teachers of obstetrics because it fulfills all the essential qualifications of a textbook. But to quote again Sinclair's delightful essay, "the student, if it is humanly possible, likes his reading to be interesting and stimulating," and it is this qualification which the new "Williams" possesses to a greater degree than any American obstetrical text currently available. Everyone who is practicing, studying, or teaching obstetrics should own this book and should read it frequently.

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PSYCHOANALYSIS AND PSYCHOTHERAPY—Developments in Theory, Technique, and Training—Franz Alexander, M.D., Director, Chicago Institute for Psychoanalysis, Clinical Professor of Psychiatry, University of Illinois, W. W. Norton & Company, Inc., New York, 1956. 299 pages, $4.75.

This is another book on these subjects from this distinguished author. He reviews the developments in this field in terms of theory, technique and training. He brings up to date his thinking on psychoanalytic theory and the technique of psychoanalytic therapy. He discusses the classical and modified approaches.

A considerable portion of the book is concerned with psychotherapy, "dynamic psychotherapy" and "psychoanalytically oriented psychotherapy." There is also the presentation of opinions of contemporary teachers of psychiatry and psychoanalysis in various medical schools, clinics and psychoanalytic institutes regarding the teaching of psychiatry, psychoanalysis and psychotherapy.

The book has a great deal of excellent material. The extremes of attitudes and belief are covered but there seems to be an indication of a trend toward a middle ground of opinion and practice.

This book will primarily be of interest to psychoanalysts, psychiatrists and those concerned with psychoanalytic and psychiatric education.

ALCOHOLISM AS A MEDICAL PROBLEM—H. D. Kruse, M.D., Editor, A Conference held under the auspices of the Committee on Public Health of the New York Academy of Medicine and the New York State Mental Health Commission. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York, 1956. 102 pages, $3.00.

The book reports a conference sponsored by two New York state medical departments. Half of the eight papers discuss the causes of alcoholism; two describe its onset and course; and one each presents the epidemiology and an evaluation of treatment. The eight participants formulate briefly considerable factual knowledge about alcoholism and some interesting theoretical concepts, mainly as a basis for suggesting various promising areas of research.

Arguments as to whether alcoholism is a disease serve little purpose in the presentation of alcoholism as a medical problem. The discussion is weakest in one of the stated aims, a consideration of proper procedures for the evaluation of treatment. Alcoholism as an addiction is not explained, nor is the practical management of the alcoholic discussed. The contributions of Alcoholics Anonymous are ignored. The physical aspects of brain disease in a large number of chronic cases of alcoholism; the use of a physiologic restraint such as disulfiram in the treatment of compulsive drinking; the need for research in the prevention of delirium; and the important research of men like Courville are either slighted or omitted. One participant frankly admits the futility of overconcentration on the chronic drinker's personality disorder and the failure of psychoanalytic treatment. Too few of the eight participants have had practical experience in the treatment of alcoholism.

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ROENTGEN SIGNS IN CLINICAL DIAGNOSIS—Isadore Meschan, M.A., M.D., Professor and Director of the Department of Radiology at Bowman Gray School of Medicine, Wake Forest College. With the assistance of R. M. F. Farrer-Meschan, M.B., B.S. W. B. Saunders Company, Philadelphia, 1956. 1,058 pages, 2,216 illustrations on 780 figures, $20.00.

Many years ago there appeared a small monograph entitled "Rontgendiagnostik der erkrankungen innerer organe in tabellenform" written by Dr. Emmerich Markovits of Vienna. This summarized in surprisingly brief and effective fashion the differential diagnosis of various diseases based on the objective findings at roentgenoscopy or roentgenography. The present work is a much larger and more ambitious effort along similar lines. The author summarizes the fundamentals of radiographic technique and the information to be obtained by radiography of different portions of the skeleton. Then, in a series of some 25 chapters, he deals with the diagnosis and differential diagnosis of various disease conditions based upon the objective evidence at hand plus the other clinical information furnished by the examining physician.

The nonspecific nature of the microscopic and macroscopic changes occurring in different types of disease is well known to experienced pathologists. Roentgenography consists essentially in the recording of living macroscopic pathology, and therefore many roentgenographic findings are by their nature nonspecific.

The book is written primarily for medical students and residents in radiology, and should be of considerable use to such workers. It is well printed and illustrated, and the number of references is sufficiently small not to detract from the fundamental text nor to cause the reader to indulge in undue serendipity. The material is based on the author's experience, especially at the University of Arkansas; he is now professor of radiology at Bowman Gray School of Medicine.

CRYPTOCOCCOSIS—Torulosis or European Blastomycosis—M. L. Littman, M.D., Ph.D., Department of Microbiology, The Mount Sinai Hospital; and Lorenz E. Zimmerman, M.D., Central Laboratory, V. A. Armed Forces Institute of Pathology, Washington, D. C. Grune & Stratton, New York, 1956. 205 pages, $8.50.

Cryptococcosis or torulosis is an exceedingly uncommon human disorder. The reviewer has encountered only three cases in nearly twenty years of special interest in infectious disease. The authors present evidence that the disease is being recognized more frequently but even at Duke University, where interest is great, only 45 cases have been recognized in 24 years. Cryptococcus is the most common cause of mycotic meningitis in man and most of the cases reported are of this form of the disease. Many other organ systems may be involved, particularly the lungs, bones and joints, so that infection with this fungus must be considered in a wide variety of clinical situations.

This is a welcome addition to the library of specialists interested in the field of infection. It is obviously a labor of love and has been exquisitely prepared. Truly magnificent color plates illustrate the histology and mycology of the disease and there are many black and white illustrations.

The authors are microbiologists and pathologists; this has doubtless influenced their selection of material. Only 53 of 183 pages are devoted to the clinical aspects of cryptococcosis—the remainder consider the disease in animals, its immunology and pathology, and the laboratory study of the infected tissues and the organism.

This book will not be of great interest to the practicing physician but should be available in hospital and teaching libraries.

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THE BILIARY TRACT—With Special Reference to the Common Bile Duct—Julian A. Sterling, A.B., M.D., M.Med. Sc., Sc.D., F.A.C.S., Staff Surgeon, Albert Einstein Medical Center and the Graduate Hospital, Associate in Surgery, Graduate School of Medicine, University of Pennsylvania. The Williams and Wilkins Company, Baltimore, 1955. 424 pages, $10.00.

This monograph attempts to cover the biliary tract completely—from the anatomy, physiology and pathology to the clinical manifestations and the therapy of diseases of the pancreas, the gallbladder and particularly the bile ducts. A good deal of attention is devoted to the termination of the common bile duct at the papilla.

The structural and physiological facts are very well presented. Each chapter is written so that it may be read, for the most part, without reference to the other chapters. This has advantages for the reader who does not care to look into more than one section of the book, although it involves a certain amount of repetition for the reader who does. The succinctly positive style of the writing brooks no questioning by the reader. The questions are answered and the answers admit of no counter-opinion. When such writing is done in the case of syndromes as difficult to solve as postoperative dyskinesia one may ask—if it's all so patent why don't the patients respond more uniformly?

The discussions on therapy are largely surgical. The whole of Medical Management is covered in a chapter of 11 pages, 2½ of which are occupied by diet lists. And most of the rest is composed of preoperative care or management when complicating disease is present. Under these circumstances the author concedes, "The assistance here of a qualified internist and proper specialists may be necessary."

In general, however, the reviewer believes that this book is well done and fills the niche it tries to fit in—a monograph of biliary tract diseases which can be used by gastroenterologists, surgeons, general practitioners, and investigators.

TEXTBOOK OF MEDICAL PHYSIOLOGY—Arthur C. Guyton, M.D., Professor and Chairman of the Department of Physiology and Biophysics, University of Mississippi School of Medicine, W. B. Saunders Company, Philadelphia, 1956. 1030 pages, 577 figures, $13.50.

For years there have been three to four standard textbooks of medical physiology which have been revised every few years but which have retained in large measure the original format and emphasis. Advances in medical physiology have been in the direction of better quantitation of physiological data, application of physiological concepts to clinical problems, and in biophysical processes. It was with some interest, therefore, that the new book by Arthur Guyton appeared, for he is a recognized teacher, biophysicist, and physiologist.

The book is good and has several advantages over previous texts. The single authorship does much to unify the entire contents of the book and provide equal emphasis on all aspects of physiology. The discussions are clear and brief, the entire book being only 1,030 pages, yet sufficient information is given that coverage of topics is not meager. However, the relationship of physiology to clinical medicine is not particularly striking, and the dynamic aspects of physiology, so important to the clinician, are not strikingly developed.

This is a good introductory textbook of physiology, and will serve the purposes of medical students well. It cannot serve as a dynamic book of clinical physiology for the continued use and reference of the practicing clinician. It is a textbook for medical students.

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LECTURES ON THE SCIENTIFIC BASIS OF MEDICINE—Volume IV, 1954-56—British Postgraduate Medical Federation, University of London. The Athlone Press, 1956. Distributed in the U. S. A. by John de Graff, Inc., 31 East 10th Street, New York 3, N. Y. 397 pages, $6.50.

The present and fourth volume of Lectures selected from those given "for young research workers, and future consultants and specialists" contains as before a miscellany of interesting topics. The lecturers are all experts in their fields and write with authority. Some of the topics are of seeming general interest to doctors such as C. H. Andrewes' article "The new look in virus research" whereas others are decidedly for the specialist as for example F. Beyel's lecture on "Some clinical aspects of abnormal growth" and J. D. Judah's "Reaction of enzymes to injury." The volume as usual is handsomely printed and illustrated.

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VENOUS RETURN—Gerhard A. Brecher, M.D., Ph.D., Julius F. Stone, Professor of Physiology, Department of Physiology, College of Medicine, The Ohio State University, Columbus, Ohio. Grune and Stratton, New York, 1956. 148 pages, $6.75.

Surgeons, anesthesiologists, internists and physiologists with an interest in the heart and venous system should welcome the appearance of this unpretentious volume by an author who has made important technical contributions to the measurement of blood flow. Following brief but adequate summaries of the earlier work of others, there are described the bristle flowmeter and the results of careful studies conducted by its means. Venous hemodynamics, the collapse of veins, the effects of normal and artificial respiration, the aspirating effects of ventricular systole on blood in the collapse chamber of the central veins and similar topics are discussed. Reasons are given for consideration of the heart as a reciprocating (pressure-suction) pump, and evidence presented for a ventricular diastolic sucking force. The monograph closes after attention to the effects of valve lesions and venous return during cardiac surgery. The bibliography and index are ample, the illustrations excellent.